



SPECIAL TRIBUNAL FOR LEBANON

المحكمة الخاصة بلبنان

TRIBUNAL SPÉCIAL POUR LE LIBAN

**THE TRIAL CHAMBER**

**Case No.:** STL-11-01/T/TC

**Before:** Judge David Re, Presiding  
Judge Janet Nosworthy  
Judge Micheline Braidy  
Judge Walid Akoum, Alternate Judge  
Judge Nicola Lettieri, Alternate Judge

**Registrar:** Mr Daryl Mundis, Registrar

**Date:** 26 October 2016

**Original language:** English

**Type of document:** Public

**THE PROSECUTOR**

v.

**SALIM JAMIL AYYASH  
HASSAN HABIB MERHI  
HUSSEIN HASSAN ONEISSI  
ASSAD HASSAN SABRA**

**REASONS FOR DECISION ADMITTING PROSECUTION'S CELL SITE EVIDENCE****Office of the Prosecutor:**

Mr Norman Farrell &amp; Mr Alexander Milne

**Legal Representatives of Victims:**Mr Peter Haynes, Mr Mohammad F. Mattar  
& Ms Nada Abdelsater-Abusamra**Counsel for Mr Salim Jamil Ayyash:**

Mr Emile Aoun, Mr Thomas Hannis &amp; Mr Chad Mair

**Counsel for Mr Hassan Habib Merhi:**Mr Mohamed Aouini, Ms Dorothée Le Fraper  
du Hellen & Mr Jad Khalil**Counsel for Mr Hussein Hassan Oneissi:**Mr Vincent Courcelle-Labrousse, Mr Yasser  
Hassan & Ms Nathalie von Wistinghausen**Counsel for Mr Assad Hassan Sabra:**Mr David Young, Mr Guénaél Mettraux &  
Mr Geoffrey Roberts

## INTRODUCTION

1. On 8 September 2016, the Trial Chamber delivered a decision in court granting a motion by the Prosecution and admitting into evidence ten items related to cell site evidence.<sup>1</sup> These are the written reasons for that decision.

2. The Prosecution alleges that five interconnected mobile telephone groups—described as red, blue, yellow, purple and green networks, and operating in four closed networks—planned, prepared and executed the attack in Beirut on 14 February 2005 that targeted the former Prime Minister of Lebanon, Mr Rafik Hariri, resulting in his death and those of others.<sup>2</sup> This included the surveillance and observation of Mr Hariri and making a false claim of responsibility for the attack.

3. To assist in proving the geographic location and movements of those mobiles when the calls were made, the Prosecution seeks the admission, under Rules 149 (C) and (D) and 154 of the Special Tribunal’s Rules of Procedure and Evidence, of what it generally describes as ‘cell site evidence’. This, it obtained from the two Lebanese telecommunications service providers, Alfa and MTC Touch.<sup>3</sup> Like all telecommunications service providers, they maintain call data records, which are essential for their billing.<sup>4</sup> These records show the numbers contacting each other, the call duration, and the cell tower to which the mobiles were connecting. Tables extracted from the raw data—called ‘call sequence tables’—can illustrate the calls and the mobiles’ locations.

4. The Prosecution relies upon call data records it obtained from Alfa and Touch to prove that mobile users within the closed networks contacted each other. In conjunction with cell site evidence, it submits that it will prove where they were when they made the calls. Alfa and Touch, like all mobile networks, have maps that show the predicted coverage for each cell (tower). This is essential for operating a network. From this information and other cell site evidence, the location of a mobile connecting to a network may be analysed and approximated by using ‘cell site analysis’.

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<sup>1</sup> Transcript of 8 September 2016, p. 4. The decision also admitted into evidence specified paragraphs in and annexes to eight witness statements of Witness PRH705 and Witness PRH707.

<sup>2</sup> STL-11-01/T/TC, *Prosecutor v. Ayyash, Merhi, Oneissi and Sabra*, F2640, Amended Consolidated Indictment, 12 July 2016, paras 14-15.

<sup>3</sup> STL-11-01/T/TC, *Prosecutor v. Ayyash, Badreddine, Merhi, Oneissi and Sabra*, F2004, Corrected Version of “Prosecution Motion for the Admission of Cell Site Evidence”, 23 June 2015 (‘Prosecution Motion’). The original motion was filed on 12 June 2015. Unless otherwise stated, all references to the Prosecution motion in this decision are to its corrected version.

<sup>4</sup> At paragraph 14 of the amended consolidated indictment, the Prosecution defines call data records as being digital records of telephone activity. They contain details of the outgoing and incoming numbers, time, date and duration of each call and the cell mast activated by the call, which indicates the telephone user’s location.

5. The Prosecution is using the cell tower (identified in the call data records by its ‘cell ID’) to which mobiles connected, and the cell coverage maps, to prove the location of the caller. And, in conjunction with other evidence, to prove that those in the network were engaging in surveying Mr Hariri’s movements or planning the attack—by performing specified pleaded acts such as purchasing a Mitsubishi Canter<sup>5</sup> that was allegedly loaded with explosives—or making a claim of false responsibility for the explosion soon after the attack. To establish the location of the mobile users, the Prosecution must prove that the call data records accurately show the cells to which the mobiles connected, and hence the locations of the users. But to prove this it must first demonstrate the accuracy of the *predicted* coverage of each cell.

6. The cell site evidence comprises information obtained from Alfa and Touch on the precise locations and names of the cell towers forming part of their networks, and various features of the antennae mounted on these cell towers, such as the direction of the antenna—known as the ‘azimuth’—and its tilt. The cell site evidence also includes ‘coverage maps’, and ‘best predicted server coverage maps’ that were provided to the Prosecution in ‘shape files’.<sup>6</sup> These illustrate the surface area over which each cell is predicted to emit the strongest signal compared with neighbouring cells. Coverage may overlap into adjacent or other cell sectors. This may depend upon the location from where in a cell sector a call is made, and can be influenced by variables such as height, topography and buildings. The evidence suggested that shape files have an accuracy of around 60 to 70 per cent.

7. Touch kept its cell site data from 2004 and 2005, the years relevant to the amended consolidated indictment.<sup>7</sup> Alfa, on the other hand, did not, and had to reconstruct some of it using a ‘best approximation method’ of which cells were on air in those years.<sup>8</sup> It provided most of its material to investigators from 2007 onwards. Counsel for the Accused highlighted, in cross-examination and submissions, some inaccuracies and anomalies in the cell site data. They attacked how the shape files were generated and argued that the witnesses who testified for Alfa and Touch

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<sup>5</sup> A light-duty commercial vehicle.

<sup>6</sup> This is a data format for GIS (geographical information system) software that spatially describes vector features such as points, lines and polygon, and is used to plot, for example, geographical features. *See* F2004, Prosecution motion, para. 16. *See also* transcript of 16 September 2015, p. 31.

<sup>7</sup> *See* transcript of 5 May 2016, pp 77-82.

<sup>8</sup> *See* exhibit P1192, Witness 707’s statement of 11 November 2015, para. 164.

lacked first-hand knowledge of some of the evidence. This combination, they submitted, made the cell site data unreliable.

8. Inaccurate or unreliable cell site data or information obviously casts doubt on the accuracy of the call data records—and the extracted call sequence tables—as to the location of the mobiles and networks relevant to the Prosecution’s case. At this stage, that of admitting the material into evidence, the Trial Chamber must only be satisfied of the *prima facie* reliability of the cell site evidence to satisfy the requirement of probative value under Rule 149 (C). If it is not, the Prosecution cannot continue with its case, based as it is on attempting to prove that the Accused were using mobiles in the alleged networks.

9. For the reasons below, the Trial Chamber was satisfied that the items comprising the cell site evidence have the necessary indicia of reliability to be *prima facie* reliable and hence probative for admission into evidence. It was satisfied of this from the evidence of Witnesses PRH705 and PRH707, representing respectively Touch and Alfa, and from examining the items proposed for admission.

10. This decision will permit the Prosecution to continue with its case by calling its witnesses who will analyse the call data records and cell site evidence. They will use this evidence to conduct cell site analysis, a technique employed to identify the approximate position of the user of a mobile telephone based on the cell site to which it connects during a call.<sup>9</sup> The evidence will be presented using demonstrative aids, including the ‘Electronic Presentation of Evidence’ software.<sup>10</sup> Examples are shown in the graphics at paragraphs 23 (e) and (f) below.

### **PROCEDURAL BACKGROUND**

11. The Trial Chamber, in a decision of 6 May 2015, deferred deciding five Prosecution motions to admit call sequence tables and related witness statements into evidence until at least one witness

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<sup>9</sup> Exhibit P549, ‘An Introduction to Cell Site Analysis as Applied to GSM Networks’ by John Edward Philips (Witness PRH435), pp 10 and 108.

<sup>10</sup> F2004, Prosecution motion, para. 11. On 16 September 2015, Prosecution analyst Mr Andrew Fahey (PRH263) testified in court and demonstrated the functionalities of the Electronic Presentation of Evidence software. The software was marked for identification as exhibit P592 MFI, pending a decision from the Trial Chamber on its admission into evidence. *See* transcript of 16 September 2015, p. 112.

had testified about the provenance of the underlying call data records, including gathering, retrieving and storing this data, and the production of the call sequence tables.<sup>11</sup>

12. In that decision, at paragraph 2, the Trial Chamber described call data records and call sequence tables as:

Call data records contain information routinely collected by these providers in connection with telephones using their services, for customer billing and systems management. ... As call data records are ‘without further analysis largely unintelligible’, the Prosecution extracted information from the call data records and entered it into what it terms ‘call sequence tables’ to make them accessible and capable of presentation and analysis without altering the data. Produced by a Prosecution analyst in a ‘standardized’ and ‘mechanical’ manner by ‘copying and pasting the relevant data from the underlying material,’ call sequence tables present chronological sequences of calls relating to a particular, or target, telephone number over a specified period of time, comprising relevant call data records and cell site information. For each call, they detail:

- the other telephone number in contact with the target number;
- the time and the date of the call;
- the type of call (voice or Short Message Service (SMS));
- the duration;
- the IMEI of the handset used by the target number;
- the cell identity and name of the cell sector used by the target number at the start of the call; and
- the cell identity and cell sector at the end of the call, when necessary.

13. In short, call sequence tables are tables extracted from call data records the Prosecution obtained from Alfa and Touch, designed to show calls between specified numbers, and the relevant cells. These demonstrate who called who (or which number called another), and where the callers were located.

14. In its motion filed a month later, in June 2015—the subject of the present decision—the Prosecution proposed the tender of 15 items of cell site evidence, and submitted that each could be

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<sup>11</sup> F1937, Decision on Five Prosecution Motions on Call Sequence Tables and Eight Witness Statements and on the Legality of the Transfer of Call Data Records to UNHCR and the STL’s Prosecution, 6 May 2015 (‘Decision of 6 May 2015’), paras 115, 118, disposition.

received into evidence under Rule 154 ‘from the bar table’ without calling a witness. It was, however, at the same time planning to call supporting witness testimony from Alfa and Touch. Counsel for the Accused, Mr Salim Jamil Ayyash, Mr Hassan Habib Merhi, Mr Hussein Hassan Oneissi, Mr Assad Hassan Sabra, and the then Accused, Mr Mustafa Amine Badreddine, responded opposing the motion.<sup>12</sup> The Prosecution subsequently filed a reply.<sup>13</sup>

15. To comply with the Trial Chamber’s decision of 6 May 2015 in relation to call sequence tables the Prosecution called several Prosecution analysts.<sup>14</sup> The Prosecution’s database administrator also testified about receiving, storing and processing raw call data provided by Alfa and Touch, and the design, implementation, maintenance and repair of the Structured Query Language (SQL) database that enables call record analysis.<sup>15</sup> And, in relation to the provenance of the underlying call data records, the Prosecution called Witnesses 705 and 707, representing respectively Touch and Alfa. Both were officially delegated by the Lebanese Minister of Post and Telecommunications for the purpose of their testimony.<sup>16</sup> Both have worked for these companies since 2012.<sup>17</sup>

16. The two witnesses testified over 26 days between January and July 2016 on many matters concerning their companies, including: an overview of each company’s corporate structure and network architecture; call setup and cell tower selection; the generation and use of cell site data; how radio planning tools such as Planet and Aircom’s Asset (used by many mobile networks) are

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<sup>12</sup> F2046, Merhi Defence Response to the “Prosecution Motion for the Admission of Cell Site Evidence”, 6 July 2015 (‘Merhi response’); F2047, Response by the Ayyash Defence to “Prosecution Motion for the Admission of Cell Site Evidence”, 6 July 2015 (‘Ayyash response’); F2049, Consolidated Response to Prosecution Motions to Admit Cell Site Evidence, Business Records and Documents from Communication Service Providers, 6 July 2015 (‘Sabra response’); F2051, Response to the “Prosecution Motion for the Admission of Cell Site Evidence” dated 12 June 2015, 6 July 2015 (‘Oneissi response’); F2052, Response of the Badreddine Defence to “Prosecution Motion for the Admission of Cell Site Evidence”, 6 July 2015 (‘Badreddine response’).

<sup>13</sup> F2072, Prosecution Reply to Oneissi and Sabra Responses to the “Prosecution Motion for the Admission of Cell Site Evidence” dated 12 June 2015, 13 July 2015 (‘Prosecution reply’).

<sup>14</sup> Ms Kei Kamei (Witness PRH308), transcripts of 20-21 July 2015; Mr Andrew Donaldson (Witness PRH230), transcript of 21 July 2015; Mr Erich Karnberger (Witness PRH312), transcript of 28 October 2015; and Ms Helena Habraken (Witness PRH371), transcripts of 22 July 2015 and 27 September 2016; Mr Lachlan Christie (Witness PRH313), transcript of 22 July 2015; and Mr Christian Carnus (Witness PRH377), transcript of 22 July 2015.

<sup>15</sup> Mr Spartak Mkrtchyan (Witness PRH111), who testified on 14 and 15 September 2015.

<sup>16</sup> Transcript of 29 January 2016, p. 50; annex 1 (exhibit P1192.1) of Witness 707’s 11 November 2015 statement (exhibit P1192); transcript of 5 May 2016, p. 2; annex 1 of Witness 705’s 16 November 2015 statement (exhibit P826.1).

<sup>17</sup> Transcript of 29 January 2016, p. 50; transcript of 5 May 2016, p. 2.

employed to plan and optimize a network;<sup>18</sup> maps showing the best predicted server coverage; the records and data Alfa and Touch generated and retained in the course of their business and their retrieval for the Special Tribunal; different customer forms, services and payment methods; SIM card supply, storage and sale; and security measures.<sup>19</sup>

17. The Prosecution also sought the admission into evidence of five statements by Witness 705,<sup>20</sup> and three by Witness 707.<sup>21</sup> The Defence objected, and the Trial Chamber denied the Prosecution's request to admit the statements into evidence in their entirety. It held, instead, that select paragraphs and annexes to the statements were admissible under either Rule 155 (C) or Rule 156, subject to the receipt of further evidence, and further submissions if necessary, as to their reliability and probative value.<sup>22</sup> Consequently, the witnesses in their testimony made the necessary declarations under Rule 156 in respect of those parts of their statements that the Prosecution sought to introduce into evidence in lieu of their oral testimony.<sup>23</sup> These statements, which overlap in much technical and general detail common to mobile network operators, described in detail the operations of their respective companies.

18. Following their testimony, the Defence filed further submissions on both the admissibility of those statements and the cell site evidence tendered by the Prosecution.<sup>24</sup> Defence counsel

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<sup>18</sup> According to the Prosecution, 'sophisticated computer modelling is used to estimate the area over which one cell can provide a usable signal. This area is represented by a computer generated shape file, or a "best predicted server coverage plot"' (footnotes omitted); F2004, Prosecution motion, para. 15.

<sup>19</sup> For Witness 707, see transcript of 29 January 2016; transcripts of 9-12, 15-18 February 2016; transcripts of 18-22 April 2016; transcripts of 3-4 May 2016; and transcript of 25 July 2016. For Witness 705, see transcripts of 5-6, 9-12 May 2016; and transcripts of 19-21 July 2016.

<sup>20</sup> Statements of 16 November 2015 (now exhibit P826); 16 December 2015 (now exhibit P1093); 3 February 2016 (now exhibit P1094); 26 February 2016 (now exhibit P1095); and 4 May 2016 (now exhibit P1096).

<sup>21</sup> Statements of 11 November 2015 (now exhibit P1192); 29 December 2015 (now exhibit P1193); and 25 January 2016 (now exhibit P1194).

<sup>22</sup> F2552, Corrected Version of Decision on Prosecution Motion for the Admission of Statements by Witness PRH707 and on Ayyash Defence Motion to Strike the Prosecution Reply, 11 May 2016 ('Witness 707 Decision of 11 May 2016'); F2597, Written Reasons for the Trial Chamber's Decision on Prosecution Motion for the Admission of Statements by Witness PRH705, 13 May 2016 ('Witness 705 Decision of 13 May 2016').

<sup>23</sup> See transcript of 5 May 2016, pp 11-13; transcript of 20 July 2016, pp 34-58. The Chamber notes that the Prosecution omitted to obtain a declaration from Witness 705 under Rule 156 with respect to paragraphs 288-291 and 322-326 of his 16 November 2015 statement (now exhibit P826). See F2750, Reasons for Admitting Witness PRH705's Statements and Annexes into Evidence, 30 September 2016 ('Witness 705 Decision of 30 September 2016'), fn. 7.

<sup>24</sup> Email from the Trial Chamber's Senior Legal Officer to the Parties, 28 July 2016; STL-11-01/T/TC, *Prosecutor v. Ayyash, Merhi, Oneissi and Sabra*, F2676, The Defence for Hussein Hassan Oneissi Supplemental Submissions in Relation to the Admissibility of Call Sequence Tables, Cell Site Data and Annexes to PRH707's Witness Statement, 29 July 2016 ('Oneissi supplemental submissions'); F2677, Ayyash Defence Submissions on the Evidence of Prosecution Witness PRH707, 29 July 2015 ('Ayyash Witness 707 submissions'); F2678, Ayyash Defence Submissions on the Evidence of Prosecution Witness PRH705, 29 July 2016; F2680, Sabra Joinder to "Ayyash Defence Submissions on the

maintained their objection to the admission into evidence of many of the paragraphs in the witness statements and some of the attached annexes. The Prosecution filed three responses to the Defence's further submissions,<sup>25</sup> and counsel for Mr Oneissi filed a reply to one of those responses.<sup>26</sup> The Prosecution pressed for the admission of the specified paragraphs and annexes.

19. On 8 September 2016, in a short decision delivered in court, the Trial Chamber admitted into evidence the relevant paragraphs in Witnesses 705 and 707's statements and their annexes. It subsequently published written reasons.<sup>27</sup> In the same decision, the Trial Chamber allowed the Prosecution's motion to admit cell site evidence, and admitted into evidence ten of the fifteen items from the motion that were not already in evidence.<sup>28</sup>

### **THE CELL SITE EVIDENCE**

20. This decision must be read in conjunction with the two decisions providing reasons for admitting the evidence of Witnesses 705 and 707.<sup>29</sup> These decisions analyse why the Trial Chamber considered their evidence on Alfa and Touch's cell site data sufficiently reliable to have the necessary probative value for admission into evidence. These also describe some of the general features of cellular networks.

21. Alfa and Touch in 2004 and 2005 provided cellular network coverage throughout Lebanon, and, under agreements with other national providers, access to roaming services for customers

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Evidence of Prosecution Witness PRH707" and "Ayyash Defence Submissions on the Evidence of Prosecution Witness PRH705", 1 August 2016; F2682, Adjonction de la défense de Merhi aux "The Defence for Hussein Hassan Oneissi Supplemental Submissions in Relation to the Admissibility of Call Sequence Tables, Cell Site Data and Annexes to PRH707's Witness Statement", 5 August 2016; F2683, Ayyash Defence Further Submissions on Prosecution Motions Related to Evidence from Call Service Providers, 8 August 2016 ('Ayyash further submissions'); F2684, Adjonction de la défense de Merhi aux "Ayyash Defence Further Submissions on Prosecution Motions Related to Evidence from Call Service Providers", 8 August 2016; F2685, Sabra Joinder to "Ayyash Defence Further Submissions on Prosecution Motions Related to Evidence from Call Service Providers", 8 August 2016.

<sup>25</sup> F2689, Prosecution Response to "Ayyash Defence Submissions on the Evidence of Prosecution Witness PRH707", 15 August 2016 ('Prosecution Witness 707 response'); F2690, Prosecution Response to "Ayyash Defence Submissions on the Evidence of Prosecution Witness PRH705", 15 August 2016 ('Prosecution Witness 705 response'); F2700, Consolidated Prosecution Response to Defence Submissions in Relation to the Admission of Call Sequence Tables and Evidence Obtained from Lebanese Communication Services Providers, 22 August 2016 ('Prosecution consolidated response').

<sup>26</sup> F2705, Reply to Consolidated Prosecution Response to Defence Submissions in relation to the Admission of Call Sequence Tables and Evidence Obtained from Lebanese Communication Services Providers, 29 August 2016 ('Oneissi Reply').

<sup>27</sup> Transcript of 8 September 2016, p. 3; F2750, Witness 705 Decision of 30 September 2016; F2767, Written Reasons for Admitting Witness PRH707's Statements and Annexes into Evidence, 10 October 2016 ('Witness 707 Decision of 10 October 2016').

<sup>28</sup> Transcript of 8 September 2016, p. 4.

<sup>29</sup> See fns 23 and 27 above.



travelling outside of Lebanon. Alfa had around 990 or so cells (towers or equivalents) in its network at the time.<sup>30</sup> Touch, it is clear from the evidence also had hundreds on air, but the precise number is unclear from evidence thus adduced. Both, like any other network provider, offered different services to customers, such as pre-paid and post-paid subscriptions, SMS texting and voice mail. Both planned their network coverage using commercial radio planning tools, used by numerous other network providers, such as Planet and Aircom's Asset. These permit networks to plan and target the coverage of each cell in a network, to maximise the coverage and thus the network's profitability. These tools produce predicted server coverage maps for each cell.<sup>31</sup> The networks also manually conduct 'drive tests', either by driving or walking around and measuring the signal of a cell and its strength. This allows the network to adjust the coverage of a cell—by changing the azimuth, tilt or height of a cell sector—or if necessary by adding another cell, or a moveable or temporary base transceiver station (BTS) with limited coverage.<sup>32</sup> A good example is to place one outside a football stadium when a match is on. Exhibit P780 explains, 'Mobile BTSs are called also COW: Cell on Wheel, are deployed to cover events like Beiteddine festival'.<sup>33</sup>

22. The coverage maps show the predicted area of coverage by each cell sector. Touch kept the records of each cell's azimuth for 2004 and 2005. Alfa did not. In 2007 and 2010 it reconstructed the coverage maps for those years by taking out of its current maps the cells that were not on air in 2004 and 2005.<sup>34</sup>

23. To illustrate some of the concepts in issue in this decision, including coverage maps, six graphics are extracted below from Prosecution and Defence exhibits. They are (a) an extract from exhibit P549 showing an idealised cell; (b) an extract from exhibit P1111 MFI purporting to show the coverage of, and overlap between some Alfa and Touch cells in South Beirut; (c) an extract from exhibit 4D196 purporting to show the coverage of, and overlap between, Alfa cell sites in central Beirut; (d) an extract from exhibit P1111 MFI purporting to show the best server coverage of Alfa cell PHENMB1 in Beirut; (e) an extract from exhibit P1117 MFI, an example of cell site analysis

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<sup>30</sup> Transcript of 11 February 2016, pp 70-71; transcript of 12 February 2016, pp 51, 53.

<sup>31</sup> Transcript of 11 February 2016, pp 32-35; transcript of 5 May 2016, pp 88-89; transcript of 21 July 2016, p. 17.

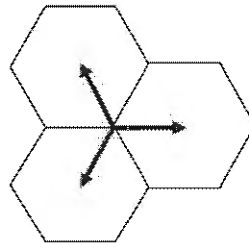
<sup>32</sup> Transcript of 11 February 2016, pp 32-34, 47; transcript of 5 May 2016, pp 81, 92-93; transcript of 19 April 2016, pp 62-63.

<sup>33</sup> This is item 7, referred to below, an Alfa Excel spreadsheet entitled 'Security Main' that contains cell site information. *See also* transcript of 6 May 2016, pp 32-33.

<sup>34</sup> *See* F2677, Ayyash Witness 707 submissions, paras 16-17, 22; F2683, Ayyash further submissions, para. 40. *See generally* transcript of 18 April 2016, pp 18-19.

demonstrating the alleged locations of ‘green’ and ‘blue’ network mobiles on 14 February 2005; and  
(f) an extract from exhibit P1152, showing the predicted coverage of the cell PORT1 in Beirut in the Prosecution’s Electronic Presentation of Evidence.

Figure 004



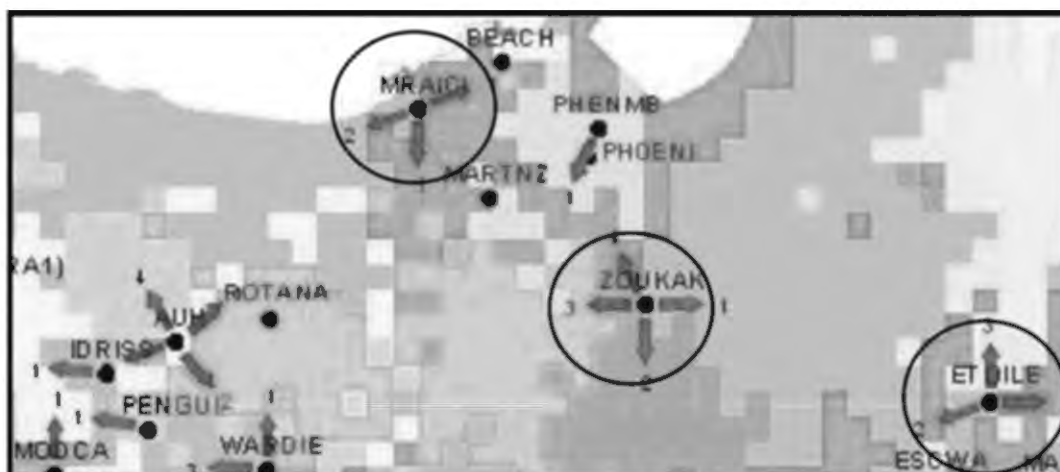
- (a) an extract from Prosecution exhibit P549, ‘An introduction to Cell Site Analysis as applied to GSM networks’, J. E. Philips, 24 September 2012, page 15, figure 004 showing an idealised cell site of the cell sectors. This depicts an omni-directional cell site with the cell site (tower) located in the middle of the hexagon with three independent directional antennae. Each antenna here has a supporting arc of  $120^\circ$  with the centre line (azimuth) of each cell denoted by an arrow;



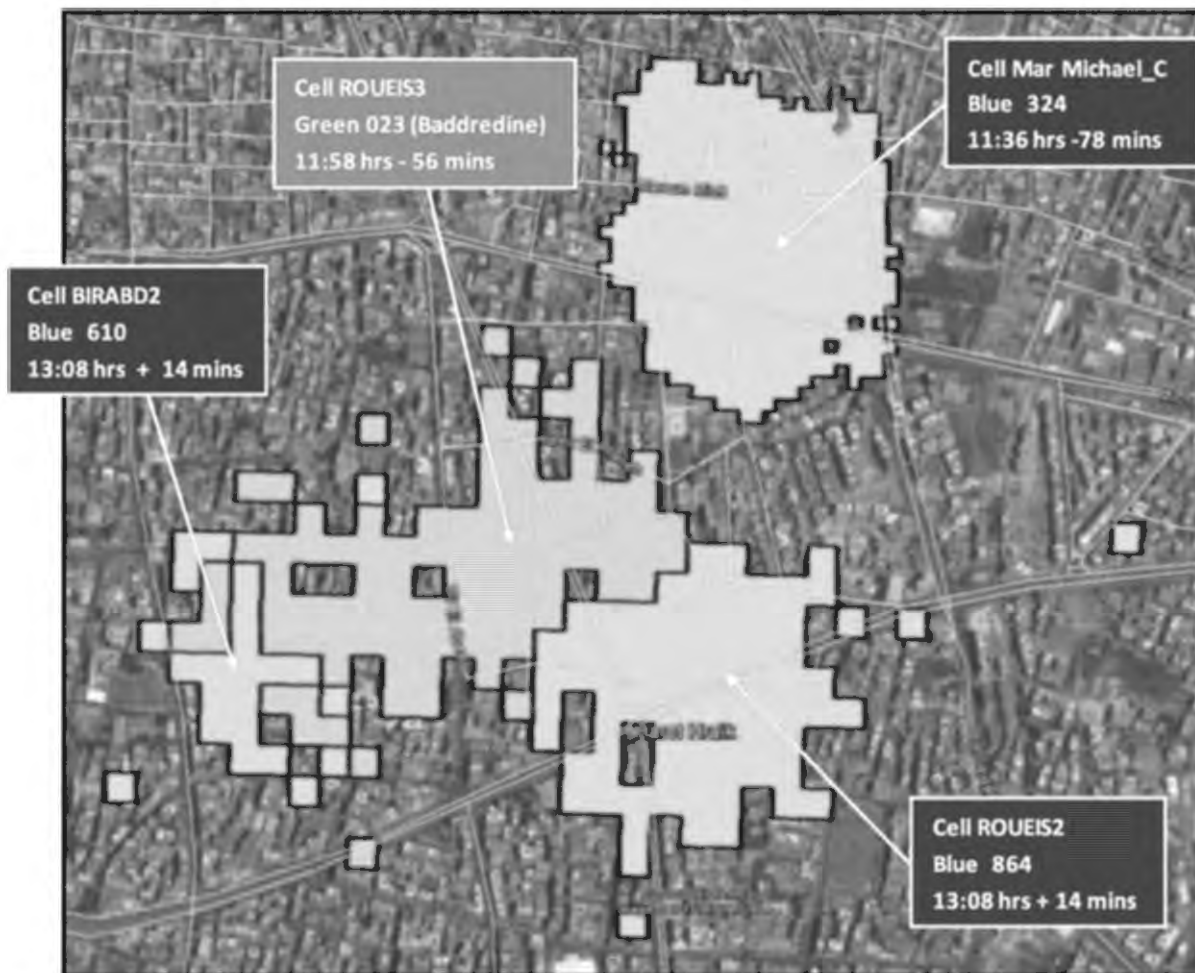
- (b) an extract from Prosecution exhibit P1111 MFI (a report of Mr J. E. Philips dated 19 December 2014, ‘Demonstration of single person use of multiple mobile phones using Cell Site Analysis Suspect 1’, page 19) which purports to show the coverage of, and overlap between, two cell sites of Alfa (SFEIR2) and Touch (Sfeir\_A) in South Beirut, Lebanon. Alfa cells are in salmon and Touch cells are in mid-blue;



- (c) an extract of Oneissi Defence exhibit 4D196 which purports to show the coverage of, and overlap between, 14 Alfa cell sites in central Beirut;



- (d) an extract from Prosecution exhibit P1111 MFI, page 272, purporting to show the best server coverage of Alfa cell PHENMB1 in Beirut, including the antenna direction of each cell sector. Each cell site is depicted with a dot and the arrows are the azimuths (centrelines) with a notional length of 200 metres;



- (e) an extract from Prosecution exhibit P1117 MFI (a report of Mr J. E. Philips, dated 29 June 2015, 'Common mission phones?', page 153, map 28A). This provides an example of cell site analysis demonstrating the alleged locations of 'green' and 'blue' network mobiles on 14 February 2005. It shows three Alfa and one Touch cell, the names of the network mobiles, namely 'Green 023', 'Blue 324', 'Blue 610' and 'Blue 864', and the time of each alleged call relative to the time of the explosion on 14 February 2005; and



| Name  | Network | Type <sup>35</sup> | Cell ID | CGI (hex)                       | Azimuth | Longitude   | Latitude    | Shape area           |
|---|---------|--------------------|---------|---------------------------------|---------|-------------|-------------|----------------------|
| PORT1   | ALFA    | MACRO              | 041B    | 4150117F4041B<br>415011807041B; | 100     | 35.51097043 | 33.89791758 | 0.63 km <sup>2</sup> |
| Sources: 60174538-60174624\60174550[DVD]; ( D0344470-D0344488; D0306652-D0306707 ; D0429118-D0429137) |         |                    |         |                                 |         |             |             |                      |

- (f) an extract from exhibit P1152, ‘Atlas of Relevant Cell Sectors in Case STL-11-01 AYYASH et al.’, page 665, showing the predicted coverage (with antenna direction) of the Alfa cell PORT1 in Beirut, in the Prosecution’s Electronic Presentation of Evidence, with a table of source material. This graphic shows the ‘patching’ of coverage as depicted by the shapes outside of the main coverage area.

<sup>35</sup> In exhibit P549, Mr Philips states (at p. 53, para. 6.3.2) that ‘Macro cells are intended to provide coverage over a wide area’ while ‘Micro cells are only required to provide coverage over relatively small areas and this is normally a targeted area i.e. an area where specific coverage is required to meet a specific demand’.

*Items proposed for admission*

24. The Prosecution presented 15 items of cell site evidence for admission to prove the reliability of the coverage maps, the call data records, and its call sequence tables. It submitted generally that:

The cell site evidence comprises system-related telecommunications data that is not linked to any particular mobile user. When read in conjunction with the Call Sequence Tables of a relevant mobile telephone, the cell site information permits an inference as to the location of the phone user at the time of a given call. The cell site information is therefore probative of the geographic location and movements of the mobile telephones the Prosecution alleges were involved in the planning and execution of the 14 February 2005 attack.<sup>36</sup>

25. The United Nations International Independent Investigation Commission (UNIIC) and the Special Tribunal's Prosecution obtained this information, through the Lebanese Government, from Alfa and Touch. It consists of information on the cellular telephone networks the two companies operated.<sup>37</sup>

26. Specifically, the 15 items are on CDs/DVDs, spreadsheets and images containing:

- a) **for Touch and Alfa:** basic cell information, namely the names and the geographic coordinates of relevant cell towers, cell sector names, Cell Global Identity (CGI) or cell ID, azimuths, the installation and removal dates for specific cells—also known as 'on air' or 'off air' dates—and the type of cell.<sup>38</sup> The CGI is a unique number identifying each cell.

The Prosecution explains that the cell IDs and cell sector names are recorded by the telecommunications service providers in their call data records when a call is made. The Prosecution has included cell ID and cell sector names in its call sequence tables because they show the approximate location of the mobile user during a call.<sup>39</sup>

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<sup>36</sup> F2004, Prosecution motion, para. 2 (footnotes omitted).

<sup>37</sup> F2004, Prosecution motion, paras 3-4.

<sup>38</sup> F2004, Prosecution motion, paras 3 (i) and 13-14.

<sup>39</sup> F2004, Prosecution motion, paras 3 (i) and 13-14.

- b) **for Touch and Alfa:** ‘shape files’, that when uploaded into software used for creating maps, such as ArcGIS, and overlaid onto a map of Lebanon, show the location of a cell mast, its antenna azimuth and the area over which that cell site can provide the strongest signal compared to neighbouring cells, namely, the ‘best predicted server coverage plot.’<sup>40</sup>

The antenna azimuth is the direction in which the sector antenna is pointing; it also has a height—that of the antenna. The tilt is the antenna’s degree of tilt upwards or downwards, adjusted to avoid another cell’s coverage area, and also not to cover an area that a network does not want it to cover. To allow a network’s technical engineers to optimise coverage, these values and the geographical coordinates of each cell site must be accurately recorded.<sup>41</sup>

A shape file is a data format for GIS software. It spatially describes vector features such as points, lines and polygons. It can plot geographical features such as water, vegetation and ‘urban’ features such as roads. It can specifically plot coverage for urban or rural areas. The layering of whatever is plotted allows the production of maps with different selected features, such as an azimuth.

- c) **for Alfa:** coverage maps showing the best *predicted* server coverage for multiple cell sites in its network.<sup>42</sup>

Alfa’s coverage maps depict the best predicted server coverage for cell sites in a particular geographic area at a particular time. Alfa uploaded the cell site shape files, corresponding azimuth values and geographic coordinates into mapping software and ‘projected’ these values and images onto maps of Lebanon.<sup>43</sup>

27. Ten of the original 15 items remain for analysis—items 1, 2, 4, 6, 7, 10, 11, 12, 14 and 15. The others are already in evidence. Two were admitted into evidence in court during witness testimony. One is exhibit P813,<sup>44</sup> an Excel document entitled ‘Sites’ and containing basic cell tower

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<sup>40</sup> F2004, Prosecution motion, paras 3 (ii) and 15-17; exhibit P549, pp 67-68.

<sup>41</sup> See transcript of 5 May 2016, pp 79-81.

<sup>42</sup> F2004, Prosecution motion, paras 3 (iii) and 18-19.

<sup>43</sup> F2004, Prosecution motion, paras 18-19.

<sup>44</sup> Item 3 in F2004, Prosecution motion, annex A. It is a file on the CD listed as item 2 of annex A.

information for Touch on seven specific dates between 2005 and 2010. Witness 705 described it as a ‘snapshot’ of the Touch network, including on 15 February 2005.<sup>45</sup>

28. The other is exhibit P799, a test file entitled ‘sites\_Req49.txt’ containing cell ID codes for Alfa,<sup>46</sup> provided by Alfa to the UNIIIC in December 2005.<sup>47</sup>

29. Three items annexed to Witness 707’s written statements were tendered into evidence twice by the Prosecution; first as annexes to the witness’s written statements, and second, as part of this cell site motion. The Trial Chamber has already admitted these annexes into evidence,<sup>48</sup> but any use the Trial Chamber makes of them will be subject to submissions as to their weight, if any. These are: first, **item 5** (exhibit P775),<sup>49</sup> an Excel spreadsheet listing the names, coordinates and azimuth of 737 Alfa cell sectors based on information from 2010;<sup>50</sup> second, **item 8** (exhibit P778),<sup>51</sup> which lists similar information for Alfa cell sectors based on information from 2007;<sup>52</sup> and third, **item 9** (exhibit P779),<sup>53</sup> two coverage maps of Beirut and Lebanon showing Alfa cell sites in February 2005.<sup>54</sup> Of the remaining ten items, one, **item 7** (exhibit P780) an Excel spreadsheet titled ‘Security Main’, was marked for identification during Witness 707’s testimony.<sup>55</sup> This is a file on a DVD the Prosecution is tendering.<sup>56</sup> The spreadsheet contains information about Alfa cell sites, their coordinates, dates of operation and whether they are still in operation.<sup>57</sup>

30. Annex A to the motion describes each of the items and makes submissions on reliability and probative value. Annex B lists and describes the documents related to the reliability of the cell site

<sup>45</sup> Transcript of 6 May 2016, pp 48-49.

<sup>46</sup> Item 13 in F2004, Prosecution motion, annex A. It was annex 16 (c) to Witness 707’s statement of 11 November 2015 (exhibit P1192).

<sup>47</sup> Transcript of 19 April 2016, p. 60.

<sup>48</sup> F2767, Witness 707 Decision of 10 October 2016, paras 63, 119, 125, 133, 140, 146, 151-155, and disposition.

<sup>49</sup> Transcript of 11 February 2016, p. 59; F2767, Witness 707 Decision of 10 October 2016, paras 134-140, 154-156, and disposition.

<sup>50</sup> The spreadsheet was attached as **annex 14 (2)** to Witness 707’s statement of 11 November 2015 (exhibit P1123) and was saved to the DVD that is **item 6**, *see* below.

<sup>51</sup> Transcript of 12 February 2016, pp 22-23; F2767, Witness 707 Decision of 10 October 2016, paras 120-125, 154-156, and disposition.

<sup>52</sup> It was attached as **Annex 13** to Witness 707’s statement of 11 November 2015 (exhibit P778).

<sup>53</sup> Transcript of 15 February 2016, p. 20; F2767, Witness 707 Decision of 10 October 2016, paras 147-156, and disposition.

<sup>54</sup> These were attached to Witness 707’s statement of 11 November 2015 as Annexes 16 (b) (1) and 16 (b) (2) (exhibit P779).

<sup>55</sup> Transcript of 16 February 2016, p. 51. The Trial Chamber admitted it as exhibit P780 in its decision of 8 September 2016: transcript of 8 September 2016, p. 4.

<sup>56</sup> The DVD is **item 6** below.

<sup>57</sup> Transcript of 16 February 2016, pp 34-51.



evidence, comprising witness statements, requests for assistance and their responses. Some witness statements are from witnesses who were not called to testify.

31. Nine items from annex A were not admitted into evidence, marked for identification, nor annexed to Witnesses 705 or 707's written statements, although some contain components that are now in evidence. Together with **item 7** that was marked for identification, as noted above at paragraph 29, the ten items are:

- a) **item 1** (exhibit P1122),<sup>58</sup> a CD containing the data for Touch's 2004 coverage maps, and 'related documentation' explaining when and how Touch generated best server coverage maps, including the projection and software used;
- b) **item 2**, also a CD, of several files and folders. These include exhibit P813 described above, and files containing the coordinates and azimuths of Touch cell masts active on various dates between 15 February 2005 and 7 July 2010, cell tower coordinates and best server coverage predictions;
- c) **item 4** is an Excel spreadsheet listing the cell ID, cell tower information and antenna azimuths for Touch for February 2005 and September 2007;
- d) **item 6** (exhibit P1123),<sup>59</sup> is a DVD containing Alfa cell tower information for 2005, 2007 and 2010;
- e) **item 7** (exhibit P780), an Excel spreadsheet titled 'Security Main' and containing basic cell information which comes from the **item 6** DVD (exhibit P1123);
- f) **item 10** (exhibit P1124),<sup>60</sup> is a CD of Alfa call data records and cell site data, although it appears the Prosecution is only seeking the admission of the cell site data, one of nine folders;
- g) **item 11**, a document, 'On Air-Off Air' contains information on Alfa cell sites in 2013. It is a folder of cell site data on the **item 10** CD;
- h) **item 12** (exhibit P1125),<sup>61</sup> is a CD containing shape files for 3 Alfa cell sectors in North Lebanon;

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<sup>58</sup> Transcript of 8 September 2016, p. 46.

<sup>59</sup> Transcript of 8 September 2016, p. 46.

<sup>60</sup> Transcript of 8 September 2016, p. 46.

- i) **item 14** (exhibit P1126),<sup>62</sup> is two spreadsheets containing Alfa cell site information; and
- j) **item 15**, is a spreadsheet, 'CellID', containing the details of Alfa cell sectors that were on or off air at a specific date.

32. In its decision delivered in court on 8 September 2016, the Trial Chamber admitted these items into evidence. Some were given exhibit numbers.<sup>63</sup> The reasons for this are analysed in relation to each item below, but after a general analysis of the general submissions relating to admitting the cell site evidence, much of which was predicated upon hearing the evidence of Witnesses 705 and 707.

### **GENERAL SUBMISSIONS**

#### *Prosecution submissions*

33. According to the Prosecution, the cell site evidence is relevant to the charges in the amended consolidated indictment and is necessary to interpret the call data records. Specifically, in conjunction with call sequence tables of calls relating to relevant telephones, it will prove the geographic location and therefore the movements of a mobile user.<sup>64</sup> It is equally essential to attribute mobiles to the Accused.<sup>65</sup> At least three witnesses—Mr John Edward Philips, Mr Gary Platt, and Mr Andrew Donaldson<sup>66</sup>—rely upon the cell site evidence in their analysis of the movements of mobiles.<sup>67</sup>

34. The cell site data was generated and maintained in the usual and ordinary course of business by Alfa and Touch for system management purposes, and accordingly meets the requirement of *prima facie* reliability for admission under Rule 154. To show that the cell site evidence is reliable, the Prosecution annexed documents obtained from Alfa and Touch describing how some of it was generated, and showing its chain of custody from the companies to the UNIIC or Special Tribunal.<sup>68</sup> The Prosecution also submitted that a review of national case law shows that historic cell site

<sup>61</sup> Transcript of 8 September 2016, p. 47.

<sup>62</sup> Transcript of 8 September 2016, p. 47

<sup>63</sup> See fns 58-62 above.

<sup>64</sup> F2004, Prosecution motion, paras 6 and 9-10.

<sup>65</sup> F2004, Prosecution motion, para. 10.

<sup>66</sup> Respectively, Witnesses PRH435, PRH147 and PRH230.

<sup>67</sup> F2004, Prosecution motion, para. 9.

<sup>68</sup> F2004, Prosecution motion, paras 5, 21 and 24; annex B.

evidence has been considered admissible, referring to the case law of the United States of America and Canada.<sup>69</sup>

35. When it filed the motion, the Prosecution stated that it would lead evidence from Alfa and Touch on the generation, storage and extraction of the cell site evidence, and their use in those companies' ordinary course of business.<sup>70</sup> Nevertheless, the Prosecution argued that the evidence could have been admitted from the bar table 'now' (that is, in June 2015), as it had been appropriately and sufficiently contextualised.<sup>71</sup> The Trial Chamber, as noted above at paragraph 11, disagreed, and Witnesses 705 and 707 testified.

#### *Defence submissions*

36. Counsel acting for the Accused strongly objected to the Trial Chamber receiving these items into evidence.

37. Counsel for Mr Ayyash objected to its admission on the basis that the Prosecution had failed to establish the requisite foundational evidence demonstrating that the cell site evidence is reliable. Citing the Trial Chamber's decision of 6 May 2015 rejecting the Prosecution's request to admit call sequence tables into evidence under Rule 154, counsel argued that where it relies upon other, inextricably-linked foundational evidence, the reliability of that underlying evidence must also be established.<sup>72</sup> They requested the Trial Chamber to defer deciding the motion until the Prosecution had led the relevant evidence that would allow the Trial Chamber to properly analyse and assess the reliability, integrity and probative value of the tendered material.<sup>73</sup>

38. Counsel for Mr Ayyash also submitted that the domestic case law cited by the Prosecution does not represent a comprehensive discussion of the admissibility of cell site evidence. Further, the Canadian case of *Cyr* held that mobile (cellphone) propagation maps—of the kind in issue here—do not establish the precise locations of where call were made, but provide approximations only. Given this level of unreliability in the evidence, the Trial Chamber must be satisfied as to its reliability and

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<sup>69</sup> F2004, Prosecution motion, para. 27 referring to Court of Appeal for Ontario (Canada), *R v. Cyr*, 2012 ONCA 919, 27 December 2012; Supreme Court of Canada, *R v. Mohan*, [1994] 2 S.C.R. 9, 5 May 1994; Court of Appeal for Ontario (Canada), *R v. Hamilton*, 2012 ONCA 399, 24 May 2011; United States Court of Appeals for the Fifth Circuit, *In Re Application of the United States for Historical Cell Site Data*, 724 F.3d 600, 30 July 2013.

<sup>70</sup> F2004, Prosecution motion, paras 22 and 26.

<sup>71</sup> F2004, Prosecution motion, para. 8.

<sup>72</sup> F2047, Ayyash response, paras 2 and 4.

<sup>73</sup> F2047, Ayyash response, para. 12.

probative value and not simply admit it with the potential of hearing additional evidence in the future.<sup>74</sup>

39. Counsel for Mr Badreddine, who was then an Accused,<sup>75</sup> similarly opposed the Prosecution motion. They submitted that admitting this material from the bar table when the Prosecution had stated that it would lead evidence on their generation, storage and extraction is prejudicial to the Defence, as the evidence is critical to the allegations against the Accused. In addition, the 15 files themselves are far from self-explanatory and present very little probative value without detailed explanations by the appropriate witness. Counsel also argued that the documents annexed to show their reliability and the chain of custody for each item do not sufficiently contextualise the evidence. They may show a chain of custody but do not explain how the cell site evidence was produced.<sup>76</sup>

40. Counsel for Mr Merhi considered the Prosecution motion premature. They reiterated, as they have in response to past Prosecution motions under Rule 154, that admission of evidence from the bar table is a supplementary procedure to be used sparingly to fill any gaps in the case, and preferably at an advanced stage of the proceedings.<sup>77</sup>

41. Out of the 15 files the Prosecution sought to tender into evidence, counsel for Mr Oneissi, in their response, objected to 11 files related to the Alfa cellular network,<sup>78</sup> since the mobile number the Prosecution attributes to Mr Oneissi was an Alfa number.<sup>79</sup> Counsel argued that the coverage maps tendered by the Prosecution have no probative value because Alfa produced the coverage maps and the basic cell data for 2005 based on data from later years. The maps are therefore not contemporaneous and should not be considered as a material fact or as business records generated in the ordinary course of business.<sup>80</sup> For these reasons, they asked the Trial Chamber to defer admitting

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<sup>74</sup> F2047, Ayyash response, para. 14.

<sup>75</sup> The proceedings against Mr Badreddine were terminated on 11 July 2016 consequent to an order of the Appeals Chamber. *See* AR126.11\_F0019, Decision on Badreddine Defence Interlocutory Appeal of the “Interim Decision on the Death of Mr Mustafa Amine Badreddine and Possible Termination of Proceedings”, 11 July 2016. *See also* F2633, Order Terminating Proceedings against Mustafa Amine Badreddine without Prejudice and Ordering the Filing of an Amended Consolidated Indictment, 11 July 2016.

<sup>76</sup> F2052, Badreddine response, paras 10 and 12-13.

<sup>77</sup> F2046, Merhi response, para. 2. *See also* F1796, Consolidated Response from the Merhi Defence to the Motions of 2 and 3 December 2014 for the Admission of Evidence Relating to the Acquisition of Network Phones, 17 December 2014, para. 3.

<sup>78</sup> F2051, Oneissi response, para. 1. The Oneissi response identifies these files as being those numbered 5 to 15 at annex A of F2004, Prosecution motion, but incorrectly calculated them as totalling 10 files, rather than 11.

<sup>79</sup> F2051, Oneissi response, para. 3.

<sup>80</sup> F2051, Oneissi response, paras 6 and 18-27.

the 11 files until after a *voir-dire* hearing, during which Prosecution witnesses could testify about the probative value of the evidence.

42. Although counsel for Mr Sabra, when the motion was filed, did not object in principle to admitting the evidence, they argued that the Prosecution had not demonstrated the necessary level of reliability for its admission.<sup>81</sup>

43. Counsel for Mr Sabra echoed the Oneissi Defence's position that the cell site information is approximate rather than definite and precise on a mobile's location during a call. Additionally, other factors that are not registered in the Prosecution's call data records may influence the information. It is also unclear from the motion what specific date or period of time the coverage maps depict. Counsel for Mr Sabra also pointed out that the Prosecution has only provided information about how some, but not all, of the cell site information was generated.<sup>82</sup> Finally, they took issue with the Prosecution's characterisation of the material as records generated in the usual and ordinary course of business, because the material is not contemporaneous and appears to have been created solely in response to requests for assistance from the Prosecutor.<sup>83</sup>

#### *Prosecution reply*

44. The Prosecution replied to the Oneissi and Sabra Defence responses. It corrected what it considered a mischaracterisation by the Sabra Defence regarding the number of coverage maps tendered in the motion. It also addressed the Sabra Defence's argument that the material was created solely in response to the Prosecution's requests for assistance and for this reason should not be considered business records. It clarified that although the material was extracted in response to requests for assistance, it was actually generated by Alfa and Touch for system planning and management purposes.<sup>84</sup>

#### *Further Defence submissions following the testimony of Witnesses 705 and 707*

45. Consistent with its decision of 6 May 2015, the Trial Chamber did not decide the motion until Witnesses 705 and 707 had testified. At the completion of their evidence, the Defence filed further

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<sup>81</sup> F2049, Sabra response, paras 2, 13 and 20.

<sup>82</sup> F2049, Sabra response, paras 4, 6, 8.

<sup>83</sup> F2049, Sabra response, para. 11.

<sup>84</sup> F2072, Prosecution reply, paras 2-4.

submissions on this and other related motions.<sup>85</sup> These submissions are also summarised in the Trial Chamber's two decisions admitting their evidence.

46. Counsel for Mr Ayyash maintained their objection to the admission of the cell site evidence.<sup>86</sup> They argue that regardless that the witnesses were qualified as 'company representatives' or 'corporate witnesses' testifying on behalf of their company, most of their evidence was not from their own personal knowledge. These witnesses relied on, and relayed, information obtained from colleagues, former company representatives, or departments within the company, rather than testified on matters within their own personal knowledge. As a result, the Prosecution did not establish the reliability of the cell site evidence and the Defence could not meaningfully cross-examine.<sup>87</sup>

47. Counsel for Mr Oneissi similarly continued to oppose the admission of the 11 items related to Alfa. It is not possible, they contend, to admit this material and address any issues at the end of trial as going to weight rather than admissibility, because the admission of unreliable evidence assumes that the Defence is able to test it via vigorous cross-examination. That could not occur, however, because Witness 707's evidence failed to establish the provenance or probative value of the material, and those who could were unavailable for interviews and have not given statements. Further, Alfa has no record of the exact steps it took to generate the material.<sup>88</sup>

48. Moreover, this is the only Prosecution evidence which could serve to show Mr Oneissi's movements. Therefore, without any corroborating evidence, the lack of probative value of the cell site data cannot be remedied at trial.<sup>89</sup> Finally, according to the Witness 707's testimony, the cell site data reflects the real coverage by no more than 60 or 70 per cent. The predicted coverage does not reflect the reality on the ground and it is not technically possible to accurately locate a mobile user using this technology.<sup>90</sup>

49. Counsel for Mr Sabra joined the further submissions filed by the Ayyash Defence. Counsel for Mr Merhi joined the Oneissi Defence's further submissions and those of the Ayyash Defence in relation to the Prosecution's motions related to evidence from call service providers.

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<sup>85</sup> See para. 18 above.

<sup>86</sup> F2683, Ayyash further submissions, para. 3.

<sup>87</sup> F2683, Ayyash further submissions, paras 22-28.

<sup>88</sup> F2676, Oneissi supplemental submissions, paras 20-21.

<sup>89</sup> F2676, Oneissi supplemental submissions, para. 22.

<sup>90</sup> F2676, Oneissi supplemental submissions, para. 53.

*Prosecution responses*

50. The Prosecution responded to the Defence's further submissions in three separate filings, one has a confidential annex.<sup>91</sup> It maintains that the material was relevant, probative and reliable, and contends that all the issues raised by the Defence go to the weight of the evidence rather than its admissibility.<sup>92</sup> It argues, moreover, that each tendered item forms an inseparable and indispensable part of Witnesses 705 and 707's evidence, and that the evidence from the communication services providers must be considered and assessed as a whole.<sup>93</sup>

51. In particular, the Prosecution submits that it tendered the cell site evidence because the Trial Chamber requested further contextual evidence on the reliability of the call data records the Prosecution used to produce the call sequence tables.<sup>94</sup> It criticises the 'exclusive' Defence focus on the in-court evidence of Witnesses 705 and 707 as the only method of proving the reliability of this type of evidence. As the Trial Chamber specified no such restriction the Prosecution has no obligation to produce a witness with direct and personal knowledge of every possible question on the data and records used to produce the call sequence tables.<sup>95</sup> In any event, at this stage, the Trial Chamber's decisions require only *prima facie* rather than definite reliability and probative value at the point of admission.<sup>96</sup>

52. The Prosecution also responded to the assertion by Defence counsel that they could not meaningfully cross-examine the relevant witness, thus violating an Accused person's fair trial rights. It has no obligation to call witnesses with full and direct personal knowledge of every possible issue the Defence may wish to address in cross-examination. Defence counsel could have asked the witnesses about what they know and do not know, and based on that, later made submissions as to the weight of the evidence. Instead, their failure to follow certain lines of inquiry in cross-examination is now used to argue that the Prosecution's evidence is unreliable.<sup>97</sup>

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<sup>91</sup> The reason for the annex is not clear. It contains submissions on the same subject as the core filing to which it is attached, and both are filed confidentially.

<sup>92</sup> F2689, Prosecution Witness 707 response, para. 3; F2690, Prosecution Witness 705 response, para. 3; F2700, Prosecution consolidated response, paras 4 and 24.

<sup>93</sup> F2689, Prosecution Witness 707 response, para. 5; F2690, Prosecution Witness 705 response, para. 6; F2700, Prosecution consolidated response, para. 3.

<sup>94</sup> F2700, Prosecution consolidated response, para. 12.

<sup>95</sup> F2700, Prosecution consolidated response, paras 17-19, 23.

<sup>96</sup> F2700, Prosecution consolidated response, para. 15.

<sup>97</sup> F2700, Prosecution consolidated response, paras 28-29, 31.

53. Finally, if the Trial Chamber decides to take into account the arguments of the Defence as to the weight of the evidence, the Prosecution clarifies a number of what it considers Defence mischaracterisations of Witnesses 705 and 707's testimony.<sup>98</sup>

#### *Defence reply*

54. In their reply, counsel for Mr Oneissi take issue with the word count in the Prosecution's consolidated response arguing that it is excessive and violates the applicable Practice Direction.<sup>99</sup> They also argue that, given the stage of the case, the Trial Chamber must assess the evidence's reliability rather than its *prima facie* reliability.<sup>100</sup> Counsel repeated their objection to the reliability of the 'raw data', on the grounds that its provenance has not been demonstrated and they cannot be qualified as business records, contrary to the Prosecution's submission.<sup>101</sup> Finally, they contested the Prosecution's interpretation of American domestic case law (cited and relied upon) on the use of cell site evidence and its characterisation of the applicable standard of admissibility of such evidence.<sup>102</sup>

### **ADMISSION OF THE EVIDENCE GENERALLY**

55. The main issue is whether the Trial Chamber was satisfied that that the cell site evidence has the *prima facie* reliability to provide the probative value necessary for its admission into evidence.

56. No challenge is made to its relevance to the case. The Trial Chamber has already found that the telecommunications evidence is relevant. Call sequence tables are relevant to prove the existence of the groups of mobiles allegedly involved in planning and carrying out of the attack of 14 February 2005.<sup>103</sup> The witness statements of Witnesses 705 and 707 are relevant to the generation of, business use, and storage of cell site data by Alfa and Touch.<sup>104</sup> The cell site evidence is also relevant.

57. The principle challenge is to its reliability and hence its probative value. Apart from the Defence complaints that Witnesses 705 and 707 were not the authors of the cell site information, the main Defence contest is that the network maps showing the best predicted server coverage in

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<sup>98</sup> F2700, Prosecution consolidated response, paras 32-39.

<sup>99</sup> F2705, Oneissi reply, para. 1; STL/PD/2010/01/Rev.2, Practice Direction on Filing of Documents Before the Special Tribunal for Lebanon, 14 June 2013.

<sup>100</sup> F2705, Oneissi reply, para. 2

<sup>101</sup> F2705, Oneissi reply, paras 4-5.

<sup>102</sup> F2705, Oneissi reply, paras 6-7. The Trial Chamber has dealt with this issue, namely the reliance on the domestic case law of the United States of America: F2767, Witness 707 Decision of 10 October 2016, paras 53-56.

<sup>103</sup> F1937, Decision of 6 May 2015, paras 114-115.

<sup>104</sup> F2552, Witness 707 Decision of 11 May 2016, para. 51; F2597, Witness 705 Decision of 13 May 2016, para. 21.



Lebanon from 2004 and 2005 lack the accuracy necessary to provide certainty as to a caller's location when a call is connected to a cell.

58. Broadly, Defence counsel state that the best predicted server coverage maps were not compiled in 2004 and 2005—during the indictment period—and it is thus impossible to know with precision to which cell a mobile was connected and hence where it was. Moreover, overlaps in coverage, and variables such as topography, weather, building heights, etc. compound this uncertainty. In short—to paraphrase the gist of the submissions—cell site analysis is an uncertain science, making reliance on it unsafe.

59. The Prosecution recognizes these deficiencies but submits that the issue, ultimately, is one of weight rather than the admissibility of the items now. The items themselves, and with the benefit of the witness testimony, have the necessary *prima facie* reliability to have probative value and hence be admissible.

#### *Admission of evidence under Rule 154*

60. Rule 154 allows the Trial Chamber to admit evidence in the form of a document or other record. A document or record can be tendered under this Rule either through a witness, or if it is not put to a witness, 'from the bar table'. The Trial Chamber has recognised that admitting evidence 'from the bar table', under Rule 154, without requiring a witness to produce or to identify it, is a well-established practice before international courts and tribunals.<sup>105</sup> Material tendered in this manner—like any other evidentiary material—must meet the basic requirements for the admission of evidence in Rule 149 (C) and (D), in that it must be relevant and probative, and its probative value must not be outweighed by its prejudicial effect.<sup>106</sup> Only *prima facie*—rather than definite—reliability and probative value is required at this stage.<sup>107</sup> Probative value, in this sense, is distinct from the weight that the Trial Chamber may ultimately give to a document or record. The

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<sup>105</sup> F1876, Decision on Three Prosecution Motions for the Admission into Evidence of Mobile Telephone Documents, 6 March 2015, para. 33; F1781, Decision on Prosecution Motion to Admit into Evidence Geographic Documents, 8 December 2014, para. 4 ('Decision of 8 December 2014'); F1350, Decision on Prosecution's Motion to Admit into Evidence Photographs, Questionnaires and Records of Victims, 28 January 2014, para. 5-7 ('Decision of 28 January 2014'); STL-11-01/PT/TC, F1308, Decision on Prosecution's Motion to Admit into Evidence Photographs, Videos, Maps and 3-D Models, 13 January 2014, para. 4 ('Decision of 13 January 2014').

<sup>106</sup> F1781, Decision of 8 December 2014, para. 4.

<sup>107</sup> F1350, Decision of 28 January 2014, para. 7; F1308, Decision of 13 January 2014, para. 8.

tendering party must also demonstrate, with clarity and specificity, where and how each document or record fits into its case.<sup>108</sup>

61. Here, the Prosecution has put some of the items from its motion to Witnesses 705 and 707. The other items are therefore admitted ‘from the bar table’ under Rule 154.

*Reliability and probative value—generally*

62. The principal argument advanced by the Defence against the admission of the cell site evidence concerns its reliability.<sup>109</sup> Counsel argue this on multiple interrelated grounds: that the Prosecution did not establish the provenance of the material; the testimony of Witnesses 705 and 707 was based on hearsay; and that Alfa and Touch cannot verify the historical accuracy of the data.<sup>110</sup>

63. Each of these items is analysed in greater detail below, but with regard to items 6, 10, 11, 12, 14 and 15, counsel for Mr Ayyash generally submit that they should not be admitted because of the lack of contemporaneous records. Further, no-one at Alfa could confirm crucial values from 2004 and 2005. Moreover, the data does not account for topographic changes in Lebanon since the beginning of 2005. The Trial Chamber therefore has insufficient information to assess the reliability of the evidence, so admitting it would violate Mr Ayyash’s fair trial rights.<sup>111</sup>

64. Similarly, counsel for Mr Oneissi argue that Witness 707 could not provide direct evidence as to the provenance of the Alfa cell site data since he did not work for the company in 2004 and 2005.<sup>112</sup> His testimony consisted of information obtained through others and he was unable to answer ‘many’ technical questions without having to revert to his colleagues to verify information.<sup>113</sup>

65. The Trial Chamber has already ruled on most of these general points about ‘corporate’ testimony and hearsay evidence. The same general objections to hearsay were made when the Prosecution applied to have portions of the written statements of the two witnesses admitted into evidence. Then, the Trial Chamber rejected the Defence position that these were inadmissible because they consisted of hearsay or ‘double hearsay’. It held that the Special Tribunal’s Statute and its Rules of Procedure and Evidence contain no prohibition against the admission of hearsay

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<sup>108</sup> F1350, Decision of 28 January 2014, para. 7; F1308, Decision of 13 January 2014, paras 4-6.

<sup>109</sup> F2676, Oneissi supplemental submissions, para. 37.

<sup>110</sup> F2676, Oneissi supplemental submissions, paras 23-63;

<sup>111</sup> F2683, Ayyash further submissions, paras 40, 46.

<sup>112</sup> F2676, Oneissi supplemental submissions, paras 23, 26, 35-36.

<sup>113</sup> F2676, Oneissi supplemental submissions, paras 24-25.

evidence, and that the usual principles of relevance and probative value apply, with the proviso, however, that its weight must be assessed in light of the totality of the evidence.<sup>114</sup>

66. The Trial Chamber reiterated this in its written reasons on the admission of Witnesses 705 and 707's statements.<sup>115</sup>

67. In addition to this, the Trial Chamber has held that a witness testifying for a corporation can provide evidence based upon reviewing company records and practices, and obtaining information from other company personnel. This applies even where the witness testifying as the representative of the corporation does not have personal knowledge, provided he or she can attest that the testimony represents business record information serving as the basis for the testimony.<sup>116</sup> Here, the witnesses confirmed that the information or documents came from corporate records, or was generated in the ordinary course of business, despite their not always knowing who specifically created them or how they were produced.<sup>117</sup>

68. The Trial Chamber has held that given the size of Alfa and Touch as national telecommunications companies, and the positions occupied by Witnesses 705 and 707, they could not have had personal knowledge of the generation and history of every business record produced. Thus, such gaps in their knowledge are not fatal to the admission of evidence from Alfa and Touch, so long as they could confirm that a document was produced in the ordinary course of business, or that the information in a document originates from those companies' business records, and that it is *prima facie* reliable.<sup>118</sup>

69. As the Trial Chamber has already held in relation to these two witnesses, given the scope and breadth of their evidence, no one person could possess such knowledge, and 'finding the originator

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<sup>114</sup> F2552, Witness 707 Decision of 11 May 2016, para. 49; F2597, Witness 705 Decision of 13 May 2016, para. 19.

<sup>115</sup> F2750, Witness 705 Decision of 30 September 2016, para. 21; F2767, Witness 707 Decision of 10 October 2016, para. 44.

<sup>116</sup> F2597, Witness 705 Decision of 13 May 2016, para. 31.

<sup>117</sup> For instance, during his testimony Witness 707 confirmed that the information in item 7 (exhibit P780: Excel spreadsheet titled 'Security Main' and containing basic cell information) came from Alfa's business records, but apparently could not recall who produced the document itself, whereas in his 11 November 2015 statement (exhibit P1192), he refers to this document as an Alfa record. *See* transcript of 20 April 2016, pp 68-73; Witness 707's statement of 11 November 2015, para. 179. He similarly explained the contents of item 8 (annex 13 to Witness 707's statement of 11 November 2015, which lists cell tower information for Alfa cell sectors based on information from 2007 and now exhibit P778), despite not having been employed by Alfa when the document was provided to the Prosecution: transcript of 12 February 2016, pp 13-14.

<sup>118</sup> F2750, Witness 705 Decision of 30 September 2016, paras 25-26; F2767, Witness 707 Decision of 10 October 2016, paras 49-50.

of many of the records will be an impracticality bordering on the impossible.<sup>119</sup> Gaps in their knowledge, however, may ultimately go to the weight of the evidence. This is even where records may have been produced specifically for the use of the UNHCR or the Prosecution.

70. In any event, the Trial Chamber has held that business records, if produced in the normal course of business of the relevant organisation or workplace, usually by this fact alone have the necessary indicia of reliability of a business record. These indicia, however, may be challenged or undermined and will be determined on a case-by-case basis.<sup>120</sup> Here, the records tendered by the Prosecution are generally business records, notwithstanding that some were produced for investigation or litigation.<sup>121</sup> They were sourced from business records and thus the Prosecution was not required to attempt to call a witness or witnesses with first-hand personal knowledge of the details or the origins of every aspect of the records.

71. Concerning the Prosecution's reliance on US and Canadian case law on the admissibility of historic cell site evidence, the Trial Chamber again emphasizes that it is not bound by domestic laws.<sup>122</sup> Though, on occasion, useful guidance may be had from domestic substantive and procedural laws, domestic rules of evidence, particularly of those using common law exclusionary rules such as the US and Canada, differ markedly from those applied by international criminal courts and tribunals using hybrid international criminal law procedures. The admissibility, or inadmissibility, of cell site evidence in domestic legal environments is not necessarily analogous before an international criminal court or tribunal. The Trial Chamber will examine each application on a case-by-case basis by applying the Special Tribunal's Rules of Procedure and Evidence and the relevant case law—international or the Special Tribunal's.

72. In relation to the reliability of cellphone propagation maps under Canadian law, the Trial Chamber also reiterates that, at this stage of the proceedings, only a *prima facie* determination of the

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<sup>119</sup> F2750, Witness 705 Decision of 30 September 2016, para. 26; F2767, Witness 707 Decision of 10 October 2016, para. 50.

<sup>120</sup> F2750, Witness 705 Decision of 30 September 2016, para. 23, fn. 36; F2767, Witness 707 Decision of 10 October 2016 para. 46, fn. 58 (and references contained therein) citing, Iran-US Claims Tribunal – Chamber One, *Riahi v. Iran*, Concurring and Dissenting Opinion of Member Brower, Case No. 485, Award No. 600-485-1, 27 February 2003, para. 97: 'In assessing the probative value of the minutes, one must bear in mind that the minutes, as business records registered with the Registration Office of Companies, are valid as they appear on their face.'

<sup>121</sup> See F2552, Witness 707 Decision of 11 May 2016, para. 62 (4).

<sup>122</sup> See generally F2552, Witness 707 Decision of 11 May 2016, para. 52; F2767, Witness 707 Decision of 10 October 2016, para. 53. See also Rules 149 (A)-(B).

reliability of the evidence is required.<sup>123</sup> The Prosecution need not go beyond this threshold. In this respect, the Trial Chamber has already considered that the approximation of the best predicted coverage of the Alfa network lacks 100 per cent accuracy. But it nonetheless held the evidence to be *prima facie* reliable since ‘the information derives directly from Alfa’s business records or was produced using Alfa’s records.’<sup>124</sup> The same reasoning applies here. The weight that can be given to this evidence will be determined later in the proceedings.

73. Counsel for Mr Ayyash and counsel for Mr Oneissi, in their submissions, dissected the two witnesses’ testimony with considerable detail in attempting to demonstrate that specific answers and statements entirely undermined the reliability and therefore the admissibility of the cell site evidence. The Trial Chamber, however, has held that *prima facie* reliability does not require the evidence to be unassailable from any possible angle; merely that it appears adequately reliable on its face for admission into evidence. Mere anomalies or irregularities in corporate records may not, without more, be sufficient to cast doubt on this indicia of reliability.<sup>125</sup>

74. The moving Party must demonstrate the indicia of reliability of each piece of evidence. The Trial Chamber has previously found documents to be admissible despite containing evident or possible errors, where these errors could either be reasonably explained, or were not such to invalidate the remainder of the evidence in that document.<sup>126</sup> Here, the alleged discrepancies, gaps, or errors identified by the Defence, or even by the witnesses, are not such as to discredit the entirety of the cell site evidence especially given its comparative volume. These are all matters going to its weight.

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<sup>123</sup> See F1937, Decision of 6 May 2015, para. 111; F2767, Witness 707 Decision of 10 October 2016, para. 49, fn. 60.

<sup>124</sup> F2767, Witness 707 Decision of 10 October 2016, para. 133.

<sup>125</sup> Iran-US Claims Tribunal – Chamber Two, *Gulf Associates, Inc. v. Iran et al.*, Case No. 385, Award No. 594-385-2, 7 October 1999, para. 49: ‘Irregularities in the corporate documentation of closely held corporations do not amount to proof of forgery. [...] [T]he Respondent’s expert evidence relating to the share certificates and the stock transfer ledger is not sufficient to dislodge the presumption that Gulf Associates’ company records are as they appear on their face.’

<sup>126</sup> See for example: F2258, Decision on Prosecution Motion for the Admission of Evidence Related to the Locations of Residences Associated with the Accused, 9 October 2015. The Trial Chamber found admissible and later admitted the electricity subscription records in which it identified errors in the translation of dates from Arabic into English (exhibits P635 and P649), paras 25 and 27. It also found admissible and later admitted the bank account documents for Mr Oneissi even though they contained a possible error in his address and an unexplained facsimile date (exhibits P641 and P642), para. 53.

*Alfa's cell site evidence generally*

75. Witness 707 provided extensive evidence, in his three statements and his lengthy testimony, about how Alfa's mobile network operates. He also commented upon some of the items proposed for admission in this motion.

76. In 2004 and 2005 Alfa had approximately 990 cells in its cellular network in Lebanon.<sup>127</sup> But it did not keep records of the azimuth values for the antennae on its cell towers as they were in 2004 and 2005. The values provided were based on estimates provided in 2007 and 2010.<sup>128</sup> The Defence strenuously attacked this and focused on Witness 707's repeated statement to this effect.<sup>129</sup> Counsel for Mr Ayyash state that 'the significance of this omission must not be understated'.<sup>130</sup> Because of this missing data, the Defence argues that Alfa's cell site evidence is not reliable.

77. At paragraph 64 of exhibit P1192, Witness 707's statement of 11 November 2015, he explained:

Alfa provided to the STL the best predicted server coverage plots in three batches:

- On 27 July 2010 ... the Information Request Unit ... provided a DVD containing ARCGIS shape files (polygons) for the best predicted server coverage for 718 ALFA cell sectors in 2005, 2007 and 2010. At that time ALFA advised the following in respect of the generation of these shape files:

In respect of mapping information for 2005 and as Alfa does not possess a digital site database dating to 2005, the mapping information was created by way of best approximation through the following method. The oldest working site database we have dates back to 29 January 2007. It contains all Alfa sites/cells that were put on air until 29 January 2007. In order to produce the coverage array for 2005, only the cells which were on air until the end of the 2005 year were considered whereas cells from beginning 2006 until 29 January 2007 were ignored. The obtained array was converted into TAB (MapInfo compatible) and then shape (ArcView compatible) files. See Annex 14.<sup>131</sup>

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<sup>127</sup> Transcript of 11 February 2016, pp 70-71; transcript of 12 February 2016, pp 51, 53.

<sup>128</sup> Transcript of 11 February 2016, p. 57.

<sup>129</sup> F2676, Oneissi supplemental submissions, paras 28-29; F2683, Ayyash further submissions, para. 40.

<sup>130</sup> F2676, Oneissi supplemental submissions, para. 29.

<sup>131</sup> This is exhibit P1192.8.

- In February 2013, in response to 2013.RFA.006, Alfa provided the Tribunal with 192 shape files for Alfa cell sectors. The covering letter is attached as Annex 15.<sup>132</sup>
- In June 2015, Alfa provided to the STL 938 shape files for 2005, in response to RFA 2015.0103. The covering letter and a PDF of the file provided are attached as Annex 16(a)(1).<sup>133</sup>

78. Witness 707 testified that Alfa's current (i.e. 2016) records do not allow verification of three values from 2004 and 2005, namely, azimuths, the height of cell tower antennae and the vertical tilt of cell tower antennae.<sup>134</sup> However, he qualified this by stating that the antennae azimuth and tilt of stations do not change fundamentally over time. Modifications may be made to the vertical tilt and position of the antennae, but even those only change within a given range and not significantly. The azimuth and tilt recorded in later years may not be exactly identical to those in 2004 and 2005, but 'they are not far from them'.<sup>135</sup>

79. This assessment is sufficient to persuade the Trial Chamber that Alfa's cell site data missing azimuth information does not of itself undermine its reliability to prevent its admission into evidence. It has the necessary indicia of reliability to be deemed *prima facie* reliable. The Defence may present evidence, including expert evidence, to demonstrate how much weight, if any, the Trial Chamber should attribute to this evidence as a result of the discrepancies or gaps.

80. Another Defence attack was based on some differences in the shape files provided by Alfa to the Prosecution at different times. In exhibit P1192, Witness 707 referred to technological advances since 2005 and addressed minor differences between the batches of shape files Alfa sent to the Prosecution over the years. Having reviewed the differences, he concluded that these may appear because of software enhancements, for example as a result of upgrades to Asset's underlying prediction algorithm, or refining and enhancing the tuning model.<sup>136</sup>

81. The witness also testified that new buildings would not necessarily require changing the location of a cell site. If a tall building is erected next to a station, very close to the antenna, the antenna would have to be moved higher, rather than completely relocated.<sup>137</sup> Conversely, if a

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<sup>132</sup> This is exhibit P1192.9.

<sup>133</sup> This is exhibit P1192.10.

<sup>134</sup> Transcript of 16 February 2016, p. 42.

<sup>135</sup> Transcript of 18 April 2016, p. 23.

<sup>136</sup> Exhibit P1192 (Witness 707's statement of 11 November 2015), para. 166.

<sup>137</sup> Transcript of 15 February 2016, pp 74-75.

building is destroyed, such as during the July 2006 war in Lebanon, it might only affect the peripheries of a sector, perhaps making that sector larger.<sup>138</sup> Moreover, only four sites were completely destroyed during the July 2006 war. Three were rebuilt in the same location, and one was rebuilt in another location and given a new cell ID.<sup>139</sup> The Trial Chamber is satisfied for the purposes of admitting documents into evidence that the destruction of these four sites does not affect the Prosecution's cell site evidence.

82. Generally, and also for the reasons set out in the decision admitting Witness 707's evidence,<sup>140</sup> the Trial Chamber was satisfied of the *prima facie* indicia of reliability in relation to this evidence.

*Touch's cell site evidence generally*

83. As for Touch, the company kept and provided data to the Prosecution for coverage maps from 2004 and 2005. This material—items 1 and 2 of annex A—is therefore contemporaneous to the indictment period. In 2004 and 2005, as noted above, it is not clear exactly how many hundred cells it had on air.

84. In his testimony, Witness 705 confirmed that the shape files Touch provided to the Prosecution in 2010 (item 1) were produced in 2004.<sup>141</sup> Touch also provided the Prosecution cell data from 2004 and 2005, including data from drive testing carried out between 2005 and 2007, when Touch did not have a planning tool like Asset.<sup>142</sup> Drive testing involves operators either driving or walking around with a mobile testing device that physically measures the coverage of a particular station. The testing device takes automatic measurements of the coverage when the engineer makes a call, and records the coordinates of that area. It is an alternative to creating shape files, but can also be used to fine tune and improve existing coverage. And, according to Witness 707—testifying regarding Alfa—it more accurately reflects coverage than shape files.<sup>143</sup>

85. Defence counsel also objected to Touch's coverage maps because of Witness 707's statement that coverage maps are 70 per cent accurate compared to reality. However, the witness explained that

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<sup>138</sup> Transcript of 4 May 2016, p. 39 (cross-examination by counsel for Mr Badreddine).

<sup>139</sup> Transcript of 18 April 2016, pp 32-35.

<sup>140</sup> See F2767, Witness 707 Decision of 10 October 2016, paras 96-109, 141-146.

<sup>141</sup> Transcript of 9 May 2016, pp 14-15.

<sup>142</sup> Exhibit P815.

<sup>143</sup> Transcript of 16 February 2016, pp 71-72.



this is an acceptable level of accuracy and that it would mainly affect the borders of a cell sector.<sup>144</sup> He underlined that it is necessary to resort to software that allows the network to predict the coverage of the radio waves, and that although there is a percentage of error, ‘there is no other way’.<sup>145</sup>

86. He also rejected a Defence suggestion that changes to the borders of one cell sector would have an exponential effect by also affecting the borders of all neighbouring cells.<sup>146</sup> In adding a station, a network would increase coverage, but that would not influence the surface area covered by the other stations.<sup>147</sup> The Trial Chamber considers this witness qualified, by virtue of his 20 years of experience and training, to provide that opinion.<sup>148</sup> That opinion is equally applicable to the general evidence of Touch’s shape files.

87. Generally, and also for the reasons set out in the decision admitting Witness 705’s evidence, the Trial Chamber was satisfied of the *prima facie* indicia of reliability in relation to this evidence.

#### *Changes in the networks in Lebanon since 2005*

88. The Trial Chamber is also satisfied that changes in cell sites in Lebanon since 2005—for both Alfa and Touch—did not occur to an extent to render the cell site data and coverage maps unreliable for admission into evidence.

89. Network planning tools such as Planet and Asset factor in geographical variations. Both witnesses testified that coverage maps take topography into account as part of what is termed the ‘clutter model’ or the ‘propagation model’.<sup>149</sup> In other words, the computer generating the coverage maps factors in the type of ground over which the radio waves will propagate and takes into account what is labelled ‘clutter’, such as water, forest, urban and suburban terrain.<sup>150</sup>

90. Witness 707 stated that because technological advances have increased the accuracy and resolution of clutter models since in 2005 using a clutter model from later years would produce more

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<sup>144</sup> Transcript of 16 February 2016, p. 81.

<sup>145</sup> Transcript of 17 February 2016, p. 9.

<sup>146</sup> Transcript of 21 April 2016, pp 27-31 (cross-examination by counsel for Mr Sabra).

<sup>147</sup> Transcript of 22 April 2016, pp 17-18 (cross-examination by counsel for Mr Sabra).

<sup>148</sup> Transcript of 17 February 2016, pp 11-12.

<sup>149</sup> Transcript of 15 February 2016, p. 6; transcript of 5 May 2016, p. 88; transcript of 6 May 2016, p. 77; transcript of 22 April 2016, pp 24-28.

<sup>150</sup> Transcript of 6 May 2016, p. 78. *See also* exhibit P549 (J. E. Philips, ‘An introduction to Cell Site Analysis as applied to GSM networks’, 24 September 2012), pp 60-61.

accurate coverage maps than those from 2004 or 2005.<sup>151</sup> Digital maps as of 2016 have an accuracy of 5 metres in cities and 20 metres in rural areas, whereas in 2004 and 2005, it was 20 metres in cities and 50 metres in rural areas.<sup>152</sup>

91. The Trial Chamber was therefore convinced of the *prima facie* reliability of this information.

#### *General conclusions*

92. Regarding the probative value of the cell site evidence, the Trial Chamber has carefully examined the Defence arguments concerning the reliability or alleged gaps in the testimony of Witnesses 705 and 707. However, it is not of the view that these diminish the probative value in general of the items remaining for admission. The cell site data, if used in the manner foreshadowed by the Prosecution, that is to track the movements of mobiles allegedly used by the Accused, is generally probative of the planning and execution of the 14 February 2005 attack.

93. Counsel for Mr Oneissi argue that the Trial Chamber should not admit the cell site evidence, at least against Mr Oneissi, because the Prosecution will not be tendering any other evidence to corroborate Mr Oneissi's movements.<sup>153</sup> However, the mere fact that there might not be corroborative evidence on the same point does not of itself diminish the probative value of the evidence. The Trial Chamber has heard expert evidence about criminal cases in domestic jurisdictions tried on the sole basis of cell site evidence.<sup>154</sup>

94. Moreover, in the event of an adverse decision under Rule 167,<sup>155</sup> Defence counsel may present evidence, including their own expert evidence, to undermine or counter the Prosecution's case.

95. The Trial Chamber at the relevant time will assess the totality of the evidence, including any Defence evidence presented either during the Prosecution case or a Defence case. For this reason, the Trial Chamber is not prepared to discard the cell site evidence now. The Trial Chamber for this

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<sup>151</sup> Transcript of 15 February 2016, p. 64.

<sup>152</sup> Transcript of 15 February 2016, p. 62.

<sup>153</sup> F2676, Oneissi supplemental submissions, para. 22.

<sup>154</sup> Transcript of 30 August 2016, pp 80-83 (testimony of Prosecution expert Mr Philips).

<sup>155</sup> Rule 167 provides: 'At the close of the Prosecutor's case, the Trial Chamber may, by oral decision and after hearing submissions of the Parties, enter a judgement of acquittal on any count if there is no evidence capable of supporting a conviction on that count.'

reason also considers unfounded the claim by the Defence that admission of the cell site evidence would violate fair trial rights.

96. In addition to these more general considerations, the Trial Chamber has carefully analysed the specific reliability and probative value of each of the ten items remaining for admission.

*Touch evidence in cell site motion – items 1, 2 and 4*

*Item 1 of annex A: a CD containing 2004 Touch coverage maps (exhibit P1122)*

97. Touch provided this CD to the Prosecution following a request for assistance asking for coverage maps for 2004. The CD contains information about the locations of Touch cell masts and cell sectors, their orientation and best server coverage predictions. It contains ArcGIS mapping files. The Prosecution will use these to show in its Electronic Presentation of Evidence, the individual cell masts, azimuths and cell sectors that prove the locations of mobiles connected with planning and preparing the killing of Mr Hariri and others. Witness 705, in his testimony, described the files on the CD.<sup>156</sup>

98. The Prosecution describes as ‘related documentation’ a note from a Touch representative explaining the files and how the data can be viewed using ArcGIS.<sup>157</sup> This was produced by a radio engineer from the radio planning team in Touch’s technical department.<sup>158</sup>

99. Based on the note (exhibit P816), Witness 705 explained how Touch generated shape files in 2004. Touch records the location, azimuth and tilt information in a site database.<sup>159</sup> It collected and recorded the geographic coordinates of cell sites (on this CD) using commercially available GPS receivers, and accounted for slight consequential changes in the data as a result of transferring the data from the GPS into another tool. Different values are used to generate shape files; the locations of the cell sites, the site and cell parameters (such as azimuth, tilt and antenna height), which are measured manually, and the propagation models, terrain map and the clutter map, that are inserted

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<sup>156</sup> Transcripts of 6 May 2016, and 9 May 2016 generally.

<sup>157</sup> Witness 705’s statement of 16 November 2015 (exhibit P826), para. 230. The note was referred to in court as a document titled ‘Request.doc’; transcript of 6 May 2016, p. 85. It was annex 20 to Witness 705’s statement of 16 November 2015, and is exhibit P816.

<sup>158</sup> Witness 705, transcript of 6 May 2016, pp 62-63; transcript of 9 May 2016, pp 4-34; Witness 705’s statement of 16 November 2015 (exhibit P826), para. 230.

<sup>159</sup> Transcript of 5 May 2016, pp 79-80.

into the planning tool.<sup>160</sup> Witness 705 also explained that a two-dimensional map gives a ground level prediction, and he agreed in cross-examination that the cell coverage range may differ at ground and at 30 metres elevation.<sup>161</sup>

100. The Defence objected to this testimony, arguing that the witness has no personal knowledge of the process used in 2004. And, in cross-examination he conceded that he did not know which GPS devices Touch used in 2004 and 2005, or their level of accuracy.<sup>162</sup>

101. But despite this gap in his knowledge, nothing was presented to cast doubt on this document's *prima facie* reliability. The Trial Chamber heard no evidence suggesting that Touch was not using the most accurate GPS systems then available.

102. The Trial Chamber is satisfied that Witness 705's testimony went beyond merely reciting the contents of exhibit P816. Instead, he explained the document's more technical aspects and he provided context to the shape files on the CD. In the Trial Chamber's view, he was qualified to do so. Similarly to Witness 707's explanation of the standard margin of error of Alfa coverage maps, Witness 705 stated in cross-examination that the Touch coverage maps had some inaccuracies, as is explained in exhibit P816.<sup>163</sup>

103. Having considered Witness 705's testimony and reviewed exhibit P816,<sup>164</sup> the Trial Chamber is satisfied that the files on that CD are *prima facie* reliable. Touch produced them from its business records. The Trial Chamber also considers that the files on this CD are necessarily probative of the locations of Touch cell masts and cell sectors used by mobiles allegedly used to plan and prepare the murder of Mr Hariri and many others in 2004 and 2005. The contents of this CD were put to Witness 705 and it is admissible under Rule 154. The Trial Chamber will later assess the weight of this item in light of the evidence as a whole.

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<sup>160</sup> Transcript of 9 May 2016, pp 6-12.

<sup>161</sup> Transcript of 21 July 2016, pp 40-41.

<sup>162</sup> Transcript of 21 July 2016, p. 22.

<sup>163</sup> Transcript of 21 July 2016, p. 19.

<sup>164</sup> Transcript of 9 May 2016, pp 54-74, 76-85.

*Item 2: CD containing Touch cell information and shape files for 2007 and 2010*

104. This CD was provided to the Prosecution by a Touch representative, in June 2010,<sup>165</sup> and contains three types of files. The first (exhibit P815)<sup>166</sup> contains answers from Touch to a Prosecution request for assistance. In particular, it explains the content of the other files on the CD.<sup>167</sup> The Prosecution had asked for shape files for cell sites in 2005, 2007 and 2010—presumably for comparison purposes, although this is not expressly explained. The Prosecution will use the mapping data on this CD to map in its Electronic Presentation of Evidence software the locations of the mobiles it attributes to the Accused.

105. The second is an Excel spreadsheet entitled ‘Sites’ (exhibit P813, **item 3** above) containing what Witness 705 described as a ‘snapshot’ of basic Touch cell information on seven specific dates between 2005 and 2010.

106. The third is the shape files for 2007 and 2010. In the note, exhibit P815, Touch explains that it does not have best server prediction maps for 2005, because from late 2004 to 2007 it did not have a planning tool such as Aircom’s Asset to generate these maps. The note explains:

During the period from late 2004 to 2007, the Radio Planning Team could not generate any new coverage maps due to the unavailability of a planning tool. We used the approximate method of drive testing an area in order to derive the best serving cell in that area. As for the latest prediction maps they are generated using Aircom’s Asset.

107. Witness 707, testifying for Alfa, explained that Asset is typically used at the planning stage for a new cell site. Afterwards, by generating shape files for a specific cell sector, it helps to determine the appropriate configuration for a cell site, such as its azimuth or tilt.<sup>168</sup>

108. The cell tower information and mapping data files for the relevant towers prove the locations of Touch cell sectors used by mobiles, along with their orientation, best server coverage and other technical data.<sup>169</sup>

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<sup>165</sup> Witness PRH011, whom the Prosecution no longer intends to call as a witness. See F2626, Prosecution Notice of Updated Revised Witness List, 20 June 2016.

<sup>166</sup> Transcript of 6 May 2016, p. 85; F2750, Witness 705 Decision of 30 September 2016, para. 73-79.

<sup>167</sup> It was annex 19 to Witness 705’s statement of 16 November 2015.

<sup>168</sup> Transcript of 9 February 2016, pp 24-25; transcript of 15 February 2016, pp 3-4, 40-43, 83-84.

<sup>169</sup> Transcript of 6 May 2016, pp 4-7.

109. Having reviewed Witness 705's testimony about exhibits P813, P815 and the other files on the CD, notably the generation of shape files described, the Trial Chamber is satisfied that all are *prima facie* reliable. They were produced from Touch's business records, and are probative of Touch cell sectors used by relevant mobile telephones. The witness commented on the relevant documents and the CD is admissible under Rule 154.

*Item 4: Excel spreadsheet showing antenna azimuths for all Touch cells on air in February 2005 and September 2007*

110. This is an Excel spreadsheet provided by Touch to the UNIIIC in October 2007 in response to a request for assistance of August 2007. The Prosecution explains that a signed, stamped cover letter from a Touch representative accompanied the spreadsheet and described it as 'showing the antenna azimuths for all Touch cells that were on air at the end of February 2005 and in September 2007'.

111. The spreadsheet has four columns for those dates showing the cell ID, the corresponding cell name, the azimuth degree and 'comments'. Comments include whether a cell sector was 'indoor' or 'omni'.<sup>170</sup> It provides orientation data for relevant Touch cell masts and cell sectors used by mobiles alleged to have been used to plan and prepare the attack. The significance of the date of September 2007 appears to relate to those cells on air at the time of compiling the response to the request for assistance, and is presumably for comparison or verification purposes.

112. Witness 705 testified that Touch records the location, azimuth, height and tilt of cells sites and stores it in the radio planning team's database. He conveyed the importance of recording this information and its accuracy, since coverage can be improved only by changing the azimuth of an antenna. Touch uses the data in this database by entering it in the propagation tool to generate coverage maps.<sup>171</sup> In cross-examination, the Defence did not put anything specific to this document to the witness.

113. Based on the covering letter from Touch to the UNIIIC and Witness 705's evidence on how and why Touch gathers this information, the Trial Chamber considers the spreadsheet to be *prima facie* reliable as containing data extracted from the database Touch maintains in the ordinary course of its business.

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<sup>170</sup> In exhibit P549, Mr Philips stated (at para. 4.1.1.1.1.23) that 'For omni-directional cell sites, the cell site can be considered to be located in the centre of the hexagon.' See graphic at para. 23 (a) above.

<sup>171</sup> Transcript of 5 May 2016, pp 65, 79-81, 83.

114. The spreadsheet helps to verify the cell ID, cell sector names and azimuth that Touch provided to the Prosecution. The Trial Chamber therefore considers this evidence to be probative of the locations of the mobiles allegedly used. Since it was not put to the witness, it is admissible ‘from the bar table’ under Rule 154.

*Alfa evidence in cell site motion – items 6, 7, 10, 11, 12, 14 and 15*

115. Witness 707 gave extensive evidence about geographic coordinates, types of antennae, the location of the antennae in terms of their azimuth and vertical tilt, and how Alfa’s radio planning team was involved in the measurement of those values. He described how and from where the direction of the azimuth for cell sites is derived and how Alfa records and uses the information. In addition, he testified about the best predicted server coverage shown through shape files.<sup>172</sup> The witness confirmed that Alfa generates shape files to find any gaps in the coverage in an area—the objective is to show the level of coverage of the network for the subscribers and to help Alfa identify weak points in certain areas.<sup>173</sup> He also explained how mobiles select cell towers by connecting to the cell with the best server signal. This could be the cell closest to the mobile, although this depends on any blockage between the mobile and the existing network cells.

*Item 6: DVD of shape files for Alfa cell sectors in 2005, 2007 and 2010 (exhibit P1123)*

116. This DVD contains the shape files for the best predicted server coverage for Alfa cell sectors in 2005, 2007 and 2010. Specifically, the four files with certain extensions ‘provide cell tower best server coverage predictions for 733 Alfa cell sites in 2005’ and cell tower map coordinates and azimuth orientation for 750 Alfa cells sites in 2005.<sup>174</sup> It was provided to the Prosecution by an Alfa representative in July 2010 following a request for assistance.<sup>175</sup> This data is similar to that provided to the Prosecution by Touch. The Prosecution intends to use it to demonstrate the reliability of the cell coverage maps, and thus, together with other evidence, the location of mobile users allegedly involved in planning and executing the assassination Mr Hariri and the death of, and injury to many others.

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<sup>172</sup> Transcript of 29 January 2016, pp 120-121.

<sup>173</sup> Transcript of 9 February 2016, p. 23.

<sup>174</sup> See ‘Specific Probative Value’ for item 16, annex A, row 6 to F2004, Prosecution motion; transcript of 25 July 2016, p. 89; the extensions are .shx, .shp, and .prj.

<sup>175</sup> The representative was Witness PRH091, whom the Prosecution no longer intends to call as a witness. See F2626, Prosecution Notice of Updated Revised Witness List, 20 June 2016; exhibit P1192, para. 164.

117. Witness 707 explained that shape files are generated by Asset to illustrate the best cell serving a certain location on the digital map.<sup>176</sup> Alfa used the data in exhibit P775 (item 5 above)<sup>177</sup> to create the 2005 shape files on this DVD.<sup>178</sup> He also explained how the 2005 shape files were generated in 2010.<sup>179</sup>

118. Specifically, Alfa's records in 2010 contained data on which cell sites were operational in 2005 and the coordinates of their geographical location.<sup>180</sup> If the database for a particular year was not available, Alfa would use that closest in time and then filter out and remove the stations put on air after the date of interest. Because it no longer held other data required by Asset, Alfa had to use some cell data from 2007 and azimuth and tilt values from 2010.<sup>181</sup> The witness explained that Asset requires all this information to produce a shape file for a specific station. If one or two values from the relevant period are missing (such as the azimuth and tilt values from 2005), data as close to the relevant period as possible would be used instead.<sup>182</sup>

119. During cross-examination, counsel for Mr Sabra relied on an Excel spreadsheet on this DVD, exhibit P780 (item 7 below),<sup>183</sup> to identify what they considered to be 17 errors in the 2005 shape files. Specifically, counsel suggested that these shape files included cells that ought to have been excluded because they were off air at the time, and excluded some that that were on air. The witness, however, rejected the significance of this, as the margin of error, in his view, amounted to no more than '3 per cent or 4 per cent' given the approximately 1400 cell sectors listed in the document.<sup>184</sup>

120. The Trial Chamber considers Witness 707's testimony and written statement on how the 2005 shape files were produced and the use of the information in exhibit P775 sufficient to confirm

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<sup>176</sup> Transcript of 15 February 2016, pp 24-25.

<sup>177</sup> The Excel spreadsheet of the names, coordinates and azimuths of 737 Alfa cell sectors based on information from 2010. It is divided into nine columns—site ID, longitude, latitude, cell ID, type (i.e macro or micro cell), sector number (i.e. 1, 2 or 3), splitted (yes or no), TMA (tower mounted amplifier, yes or no) and azimuth (degree).

<sup>178</sup> Transcript of 15 February 2016, pp 24-25.

<sup>179</sup> Transcript of 9 February 2016, pp 24-25; transcript of 15 February 2016, pp 3-4, 40-43, 83-84.

<sup>180</sup> Transcript of 15 February 2016, p. 60.

<sup>181</sup> Transcript of 15 February 2016, pp 44-54; Witness 707's statement of 11 November 2016, para. 164.

<sup>182</sup> Transcript of 15 February 2016, pp 24-25.

<sup>183</sup> Excel spreadsheet referred to as 'Security Main' and containing basic cell information.

<sup>184</sup> Transcript of 21 April 2016, pp 32-33. Exhibit P780 appears to contain the details of 831 on air and off air cell sectors, rather than 1400. See 'Specific Probative Value' for item 7 at F2004, Prosecution motion, annex A.



their *prima facie* reliability.<sup>185</sup> The discrepancies identified by the Defence through exhibit P780 do not render the 2005 shape files unreliable, although they may go to the weight of that evidence.

121. With regard to azimuths, the witness stressed that changes to an antenna's orientation over time would be infrequent and minimal, and would occur only in specific instances, such as when a new station is built near an existing one, if the company receives subscriber complaints about the quality of the existing coverage, or after extreme weather conditions.<sup>186</sup>

122. From 2004 to 2007, however, Alfa did not add many new stations and its network was 'stable'.<sup>187</sup> Changes to the direction of an antenna, required because of complaints about the coverage, would be 'slight', and the adjustments that would not radically change the coverage of a cell sector.<sup>188</sup> On this basis, the Trial Chamber is satisfied that Alfa's network configuration has not changed between 2005 and 2010 in a manner such as to make the 2005 shape files on this DVD unreliable.

123. As for the 2007 and 2010 shape files on the DVD, the Trial Chamber is satisfied that Alfa's record keeping practices for those years regarding these shape files satisfy the indicia of reliability for admission into evidence. Although Alfa used azimuth and tilt values from 2010 for both sets of shape files on this DVD, it had, in 2007, provided to the Prosecution azimuth values from that year.<sup>189</sup> That Alfa is no longer able to confirm values from 2007,<sup>190</sup> in the Trial Chamber's view, does not strip them of their *prima facie* reliability, since they were produced from Alfa's contemporaneous business records.

124. The Trial Chamber has already addressed Witness 707's assessment of the accuracy of shape files produced by Alfa.<sup>191</sup> The witness explained that Aircom, despite not generating 100 per cent accuracy in the maps it produces, is used by nearly all mobile network operators, and they rely on it

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<sup>185</sup> Transcript of 12 February 2016, pp 23-27, 32-35, 37-44.

<sup>186</sup> Transcript of 15 February 2016, pp 35-36, 64-66; transcript of 20 April 2016, pp 24-25 (cross-examination by counsel for Mr Sabra).

<sup>187</sup> Transcript of 15 February 2016, pp 41.

<sup>188</sup> Transcript of 15 February 2016, pp 65 and 69.

<sup>189</sup> Exhibit P778 (item 8).

<sup>190</sup> Transcript of 25 July 2016, p. 8 (cross-examination by counsel for Mr Oneissi).

<sup>191</sup> See para. 85 above.

despite this margin of error. According to the witness ‘a margin of error of 20 or 30 per cent is better than nothing at all.’<sup>192</sup>

125. The Trial Chamber considers that this data comes from the records Alfa produces in the ordinary course of its business. The DVD is probative of the best predicted server coverage for Alfa cells that the Prosecution will use with the Electronic Presentation of Evidence and that will ultimately be used to show the movements of mobiles relevant to the Prosecution’s case. The witness testified about how the shape files on this CD were generated by Alfa and has specifically commented on the relevant documents. The CD may be received into evidence under Rule 154, although not as a document tendered ‘from the bar table’.

*Item 7: Excel spreadsheet referred to as ‘Security Main’ and containing basic cell information (exhibit P780)*

126. This spreadsheet, exhibit P780, is a file on the DVD (item 6) provided by Alfa to the Prosecution in July 2010. It contains information on the name, type, region, CGI, on/off air dates, sector splitter, coordinates and azimuth direction for 794 Alfa cell sectors still on air in 2010, and 37 cell sectors taken off air between 2005 and 2010. The Prosecution explains that it relied on this information to verify the CGI code and on/off dates for relevant individual cell sectors for 2004 and 2005. The spreadsheet also provides information, such as CGI codes for Alfa cell sites, necessary to produce the call sequence tables that match cell codes from call records with cell names.

127. The significance of this item is in confirming the accuracy of the records underlying the call data records, and thus the call sequence tables, which, together with other evidence, will, if accepted, clearly demonstrate the location of particular mobiles.

128. The spreadsheet contains information described by the Prosecution as ‘basic cell information’. Witness 707 explained that some of this type of ‘basic cell information’ is related to software, such as the CGI, which is programmed into the system, whereas other information is mechanical and is not related to programming, such as an antenna’s tilt, height and azimuth. The location of the antenna, tilt and azimuth are calculated manually. This information is recorded by the company in a standardised database and used mainly by its radio coverage team to inform it of the

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<sup>192</sup> Transcript of 16 February 2016, pp 80-81.

current situation of the network including the locations of the different switch centres, and the directions of the antenna, their tilt and altitude and the type of antenna.<sup>193</sup>

129. Witness 707 explained the contents of the document and the meaning of the columns on the spreadsheet.<sup>194</sup> He confirmed that the information was extracted from Alfa's business records and can be verified against the company's archives.<sup>195</sup> Alfa also sends this file to the Lebanese security authorities to inform them of sites that are on air.<sup>196</sup>

130. There are some discrepancies in the CGIs in this document. Witness 707, at paragraph 179 of his statement of 11 November 2015, explains the reason for discrepancies in 16 cells. For seven of the 16 cells (in exhibit P799) Alfa 'simply' missed a digit in the cell ID segment of the CGI.<sup>197</sup> Other differences between exhibit P799 and exhibit P780 reflect changes made by Alfa between 2005 and 2010, including minor configuration changes to a cell site.

131. He concluded, however, that 'it does not appear that these discrepancies indicate a significant change in the location of those cell stations'. He noted some other discrepancies, such as that the CGI should consist of 13 digits whereas some of the CGI in the chart were 12 digits,<sup>198</sup> and a possible formatting error for the 'on air' date for one cell sector.<sup>199</sup>

132. The witness could not personally confirm the accuracy of the data contained in the spreadsheet, but the Trial Chamber accepts his explanation for this, namely, that it is impossible for one person to memorise twenty pages of abstract numbers and figures.<sup>200</sup> In addition, in cross-examination, Defence counsel stated that the Parties agreed on this document's provenance.<sup>201</sup>

133. On this basis, the Trial Chamber is satisfied of the spreadsheet's *prima facie* reliability, based on its provenance as a document produced from Alfa's business records. Exhibit P780 is probative of Alfa cell sectors relevant to the Prosecution case and of information included in the call sequence tables produced by the Prosecution. The Trial Chamber is satisfied from Witness 707's evidence that

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<sup>193</sup> Transcript of 29 January 2016, pp 120-124.

<sup>194</sup> Transcript of 16 February 2016, pp 34-51; for example, at p. 36 he stated that the splitter is equipment used if a cell uses more than one frequency, such as 900 and 1100 megahertz.

<sup>195</sup> Transcript of 16 February 2016, pp 34, 41, 47.

<sup>196</sup> Transcript of 21 April 2016, p. 16 (cross-examination by counsel for Mr Sabra).

<sup>197</sup> Listed at annex 16 (c) to his statement of 11 November 2015 (exhibit P799).

<sup>198</sup> Transcript of 16 February 2016, pp 46-47.

<sup>199</sup> Transcript of 20 April 2016, p. 68 (cross-examination by counsel for Mr Sabra).

<sup>200</sup> Transcript of 16 February 2016, p. 48.

<sup>201</sup> Transcript of 21 April 2016, pp 2-4 (cross-examination by counsel for Mr Sabra).

it is generally probative of what was in Alfa's cell network at the relevant time. Its precise degree of accuracy is a matter of weight. As the document was put to Witness 707, it is admissible under Rule 154.

*Item 10: folder 3a\cell-coverage-july-2005 containing Alfa shape files (exhibit P1124)*

134. This CD contains software files that the Prosecution received from Alfa in February 2013 in response to a request for assistance, consisting of call data records and cell site data. The relevant information relates to July 2005.

135. The Prosecution's description under the heading 'Specific Probative Value' in annex A to the motion suggests that it seeks to have only one folder (folder 3a\cell-coverage-July-2005), containing cell site data, admitted into evidence, rather than the whole CD. The Trial Chamber will therefore only consider the admission of that folder, as the remaining folders concern call data records, which are not the subject of the motion.

136. Folder 3a on the CD contains shape files for 369 Alfa cell sectors for July 2005.<sup>202</sup> These are those that appear to be relevant to the Prosecution's case, namely those identified as being used by mobiles allegedly involved in the murder of Mr Hariri and others who also died and were injured.

137. A file on this CD (not folder 3a) is exhibit P784.<sup>203</sup> When testifying about how she created a call sequence table, Prosecution analyst Ms Kei Kamei explained that she used a text file of call data records from this CD.<sup>204</sup>

138. The shape files, as already noted, show predicted cell coverage. Witness 707 testified about the general accuracy of these, stating, as also noted above at paragraph 124, that they are not 100 per cent accurate. His testimony, however, suggests that these values would not have fundamentally changed in later years to a degree that would invalidate the *prima facie* reliability of the shape files for their admission into evidence. The Defence did not cross-examine the witness on this folder.

139. As already described for item 6 above, the Trial Chamber is satisfied that Witness 707's testimony has established the *prima facie* reliability of the data on this CD, despite Alfa not

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<sup>202</sup> Witness 707's statement of 11 November 2016, para. 164.

<sup>203</sup> Transcript of 17 February 2016, p. 81; F2767, Witness 707 Decision of 10 October 2016, paras 63, 190, 191. It is annex B to Witness 707's statement of 25 January 2016, exhibit P784.

<sup>204</sup> Transcript of 20 July 2015, pp 86-87.

preserving values from 2005 in its records. The Trial Chamber accordingly considers this CD generally probative of the coverage areas of relevant Alfa cell sites in 2005. Since these shape files were not put to Witness 707, they are admissible ‘from the bar table’ under Rule 154. As with the remaining items, however, any gaps or weaknesses in the data underlying the material may go to its weight.

*Item 11: Excel spreadsheet with information on Alfa cell sites in 2013*

140. This Excel file was provided by Alfa to the Prosecution in response to a request for assistance and it contains information on 319 Alfa cell sites. The column headers are site, cell, type, region, CGI (HEX), put on air date, put off air date, sector, splitter, long(itude), lat(itude), and azimuth (degree). These are for the cells operating in 2013, and 69 cells taken off air before 2013. It is saved on the CD, item 10 (folder 3a\cell-coverage-July-2005), although it is unclear why the Prosecution sought to tender it twice, as part of item 10, and separately here as item 11.

141. The significance of the 319 Alfa cell sites appears to be related to the number of cells that mobiles allegedly involved in the attack connected to. The year 2013 appears to have been selected for analytical deduction purposes. This information is relevant to the production of call sequence tables and the conversion of numerical cell IDs into cell tower names. The Trial Chamber considers it to be *prima facie* reliable as it was extracted from Alfa’s business records, similarly to the spreadsheet containing analogous information at item 7 (exhibit P780) that Witness 707 confirmed contained information originating from Alfa’s records, and in the same manner that item 6 was produced. The data from this document was used to produce call sequence tables. It is therefore probative. As the Prosecution did not put this document to Witness 707, it is admissible ‘from the bar table’ under Rule 154.

142. As with other cell site data produced by combining data from 2004 and 2005 with values from later years, the Trial Chamber may consider any gaps in record-keeping when determining the evidence’s weight.

*Item 12: CD containing shape files for 3 Alfa cell sectors (exhibit P1125)*

143. This CD was provided to the Prosecution by Alfa in response to a request for assistance in January 2014 and contains shape files for three Alfa cell sectors in North Lebanon, namely, MAARAD1, MAARAD2 and MAARAD3. The Prosecution argues that the shape file for

MAARAD2, in Tripoli, confirms the azimuth value that Alfa had separately provided to the Prosecution, namely, in the DVD at item 6.

144. These three cells were missing from the data that Alfa previously provided to the UNHCR and the Prosecution, and it sought this information to rectify this omission.<sup>205</sup> These too were cells to which mobiles allegedly involved in the attack connected in 2004 and 2005. As described above, Witness 707 testified extensively about geographic coordinates, types of antenna, the location of the antennae in terms of their azimuth and vertical tilt, and how Alfa's radio planning team was involved in the measurement of those values.

145. This evidence, together with the reasoning regarding the *prima facie* reliability of exhibit P776,<sup>206</sup> a chart comparing changes in azimuth values between those provided by Alfa to the Prosecution in 2007 (exhibit P778, item 8) and those provided in 2010 (exhibit P775, item 5), and showing that the azimuths of only 20 Alfa sectors had changed,<sup>207</sup> provides the basis to admit this document into evidence. The azimuths of MAARAD1, MAARAD2 and MAARAD3 are not in this chart, allowing the inference, at this stage of the proceedings, that they may not have changed in those years.

146. The Prosecution and Defence did not question the witness on this document, but the Trial Chamber is satisfied of its *prima facie* reliability as data extracted from Alfa business records. The shape files on this CD confirm the parameters of Alfa cell sectors and help establish the *prima facie* reliability of other data provided by Alfa to the Prosecution.

147. This item along with other evidence regarding Alfa cell sectors is probative of where the relevant mobile telephones were operating from. This links to mobiles allegedly used to plan and prepare the killing of Mr Hariri and others. As the Prosecution did not put the relevant shape files on this CD to the witness, they are admissible 'from the bar table' under Rule 154.

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<sup>205</sup> Transcript of 13 October 2016, p. 64. This information goes to the relevance of the item, which is uncontested, rather than its reliability.

<sup>206</sup> Transcript of 11 February 2016, p. 88; F2767, Witness 707 Decision of 10 October 2016, paras 163-168. It is annex 19 of Witness 707's statement of 11 November 2015.

<sup>207</sup> Transcript of 15 February 2016, p. 32.

*Item 14: Excel spreadsheets with information on 1090 Alfa cells in 2007 and basic cell data for three Alfa cell sectors (exhibit P1126)*

148. Item 14 is two spreadsheets on a DVD, 'Alfa cell list 19-09-2007', and 'Cellpart3'. The DVD was delivered to the UNIIIC in response to a request for assistance in September 2007, accompanied by a letter signed by Alfa's Managing Director and Chief Executive Officer.

149. The first spreadsheet contains the CGI of 1090 Alfa cells; the second contains original coordinates, azimuth direction and service dates in relation to three specific cell sectors in Beirut: PHENMB1, MOVPIK1 and BHVOUT1/2. The Prosecution relied on information from this second spreadsheet to verify the azimuths of PHENMB1 and MOVPIK1. The first spreadsheet was used to find cell tower names corresponding to cell ID codes, to produce call sequence tables.<sup>208</sup>

150. The three cells are in Beirut. PHENMB1 is near the scene of the explosion, while MOVPIK1 is on the coast, west of the Port of Beirut and north of Beirut airport. The significance of this item is that it is a UNIIIC request seeking updated information as of September 2007 that could be used to ascertain the accuracy of the azimuth information provided for these cells.<sup>209</sup>

151. Witness 707 testified that in 2004 and 2005 Alfa had around 990 cells on air. Alfa received a request for assistance from the Prosecution 'recently' asking it to confirm a previous request from 2007. It had to go back to the available records and, based on those records, Alfa confirmed the information from 2007.<sup>210</sup> The witness clarified that it is not possible to precisely confirm the mechanical values such as an azimuth of an antenna in 2004 and 2005.<sup>211</sup> However, the coordinates will not have changed if the cell site still exists.<sup>212</sup>

152. The witness explained that the call data records allow the identification of the number of cell sites in use in 2004 and 2005. The call data records also record the cell number, its CGI, but not the cell name, which is why it is necessary, for the purpose of call sequence tables, to connect the CGI to the relevant cell name. Moreover, the CGI identifies the cell ID connected to a base station controller, and from this, which mobile switching centre/mobile station control was connected to the

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<sup>208</sup> See 'Specific Probative Value' and 'Details on Reliability' at item 14 of annex A to the motion.

<sup>209</sup> Prosecution expert Mr Philips requested best server coverage for PHENMB1 and MOVPIK1: exhibit P1111 MFI, p. 24, paras 5.3.1.5-5.3.1.7.

<sup>210</sup> Transcript of 9 February 2016, pp 48-49.

<sup>211</sup> Transcript of 11 February 2016, p. 55.

<sup>212</sup> Transcript of 16 February 2016, p. 8.

base station controller.<sup>213</sup> The stations referred to are the stations that send the frequencies picked up by a mobile handset.<sup>214</sup>

153. The Defence did not cross-examine Witness 707 on either document.

154. The two Excel spreadsheets are probative of the cell names in the Prosecution's call sequence tables and the azimuths for PHENMB1 and MOVPIK. This in turn is probative of the location of mobiles allegedly used to prepare and plan the killing of Mr Hariri and others.

155. The Trial Chamber finds these spreadsheets to be *prima facie* reliable as having been produced from Alfa business records and probative of information included in call sequence tables, such as the cell tower names. As the Prosecution did not put them to Witness 707, they are admissible 'from the bar table' under Rule 154.

*Item 15: Excel spreadsheet containing information on Alfa cell sectors on and off air in March 2010*

156. Item 15 is a spreadsheet containing basic cell data. It was provided to the Prosecution on DVD by Alfa representatives in March 2010.<sup>215</sup>

157. As with other items above, the spreadsheet contains generic data produced in the usual course of Alfa's business. Specifically, it contains details of 1749 Alfa cell sectors on air on 19 March 2010, such as their type, region, CGI, installation date, sectors, splitter, original longitude and latitude, and azimuth direction. Similar details were provided for 83 cell sectors that were off air in 2010. The Prosecution relied on this information to verify the CGI, coordinates, azimuth direction and cell type of some individual cell sectors, and to find cell tower names corresponding to cell ID codes to produce call sequence tables.

158. Counsel for Mr Oneissi questioned Witness 707 on differences between the azimuth values in this document and those in exhibit P780 (item 7). The witness could not provide any specific answers without seeing the details of the requests for assistance from the Prosecution that generated the two documents. However, in relation both to this and another comparative chart put together by

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<sup>213</sup> Transcript of 9 February 2016, p. 51.

<sup>214</sup> Transcript of 9 February 2016, p. 44.

<sup>215</sup> See 'Details on Reliability' at item 15 of F2004, Prosecution motion, annex A.



Defence counsel (comparing discrepancies between exhibits P775 and P778),<sup>216</sup> he explained that the changes in azimuth values were reasonable and, for some, ‘not that big’, given that the spreadsheets covered a number of years.<sup>217</sup>

159. Based on Witness 707’s testimony on Alfa’s record keeping, specifically because Alfa was recording these types of cell data in 2010 and would have therefore provided them contemporaneously to the Prosecution, the Trial Chamber considers the spreadsheet to have sufficient indicia of reliability for admission into evidence. Defence counsel did not specifically challenge the reliability of the information contained in it. Moreover, Witness 707 testified about a spreadsheet containing similar information and confirmed that it was extracted from Alfa business records.<sup>218</sup> The spreadsheet is probative of the cell ID codes and cell tower names the Prosecution used to produce call sequence tables. As it was not tendered by the Prosecution through Witness 707, it is admissible ‘from the bar table’ under Rule 154.

### **CONCLUSION**

160. The Trial Chamber has carefully reviewed the Prosecution’s cell site evidence, comprising the items in the motion and the evidence of Witnesses 705 and 707, testifying for Touch and Alfa. It viewed each piece of evidence, and the evidence in its totality.

161. It was satisfied that the evidence is relevant and that the Prosecution has demonstrated its *prima facie* reliability such as to make it probative for admission into evidence. The Trial Chamber was satisfied that items 1, 2, 4, 6, 7 (exhibit P780) 10, 11, 12, 14 and 15 of annex A to the motion may therefore be admitted into evidence. Although the Defence highlighted some possible deficiencies in the underlying cell site data, and in particular in relation to Alfa’s maps of its cell coverage in 2004 and 2005, this has not deprived the material of its probative value at the stage of its admission into evidence.

162. This decision does not mean that the material is probative enough for the Trial Chamber to rely upon it in its judgment, only that it is sufficiently so for the purpose of being admitted into evidence. The Trial Chamber will assess the weight of each item, if any, in light of the totality of evidence and submissions from the Parties.

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<sup>216</sup> Exhibit P776.

<sup>217</sup> Transcript of 25 July 2016, pp 16-17, 31-46, 53-54 (cross-examination by counsel for Mr Oneissi).

<sup>218</sup> See item 7 (exhibit P780) above.

### **WORD LIMIT**

163. In its consolidated response, the Prosecution requests to be allowed to exceed the normal word limit. The Trial Chamber has already granted this request.<sup>219</sup>

### **CONFIDENTIALITY**

164. Because they contain confidential information, the Prosecution seeks to maintain the confidential status of the annexes to its motion and two of its responses.<sup>220</sup> The Trial Chamber reiterates the public nature of these proceedings and orders the Prosecution either to file a public redacted version of the annexes and responses, or have them reclassified as public.

### **DISPOSITION**

**FOR THESE REASONS**, the Trial Chamber:

**ADMITTED** formally into evidence on 8 September 2016 under Rule 154 the following items specified in annex A to the motion:

- item 1: the CD containing 2004 Touch coverage maps (exhibit P1122);
- item 2: the CD containing Touch cell information and shape files for 2007 and 2010;
- item 4: an Excel spreadsheet showing the antenna azimuths for all Touch cells that were on air at the end of February 2005 and in September 2007;
- item 6: the DVD with shape files for Alfa cell sectors in 2005, 2007 and 2010 (exhibit P1123);
- item 7: the Excel spreadsheet titled ‘Security Main’ and containing basic cell information (exhibit P780);
- item 10: folder 3a\cell-coverage-july-2005 saved on a CD and containing Alfa shape files (exhibit P1124);
- item 11: the Excel spreadsheet containing information on Alfa cell sites in 2013;
- item 12: the CD containing shape files for 3 Alfa cell sectors (exhibit P1125);

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<sup>219</sup> F2767, Witness 707 Decision of 10 October 2016, para. 201.

<sup>220</sup> Specifically, F2690, Prosecution Witness 705 response; F2700, Prosecution consolidated response.

- item 14: two Excel spreadsheets, one with information on 1090 Alfa cells, and the other with basic cell data for 3 Alfa cell sectors (exhibit P1126); and
- item 15: a spreadsheet containing information on Alfa cell sectors on air and off air in March 2010.

**ORDERS** the allocation of exhibit numbers to items 2, 4, 11 and 15; and

**ORDERS** the Prosecution to file a public redacted version of the annexes to its motion and its responses, or have them reclassified as public.

Done in Arabic, English, and French, the English version being authoritative.

Leidschendam,  
The Netherlands  
26 October 2016

*David Re*

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Judge David Re, Presiding

*Janet Nosworthy*

\_\_\_\_\_  
Judge Janet Nosworthy

*Micheline Braidy*

\_\_\_\_\_  
Judge Micheline Braidy

